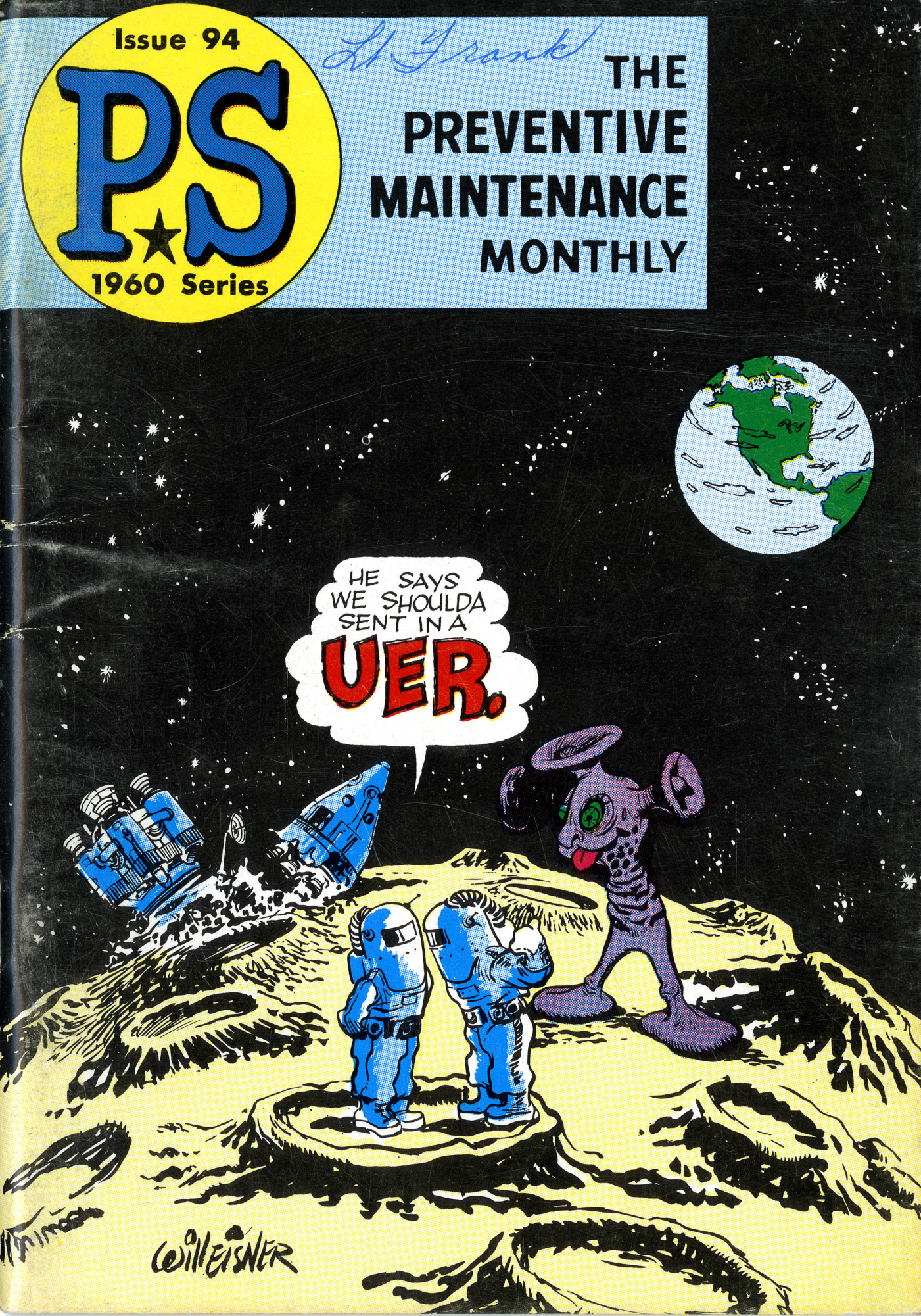
Issue 94

PS

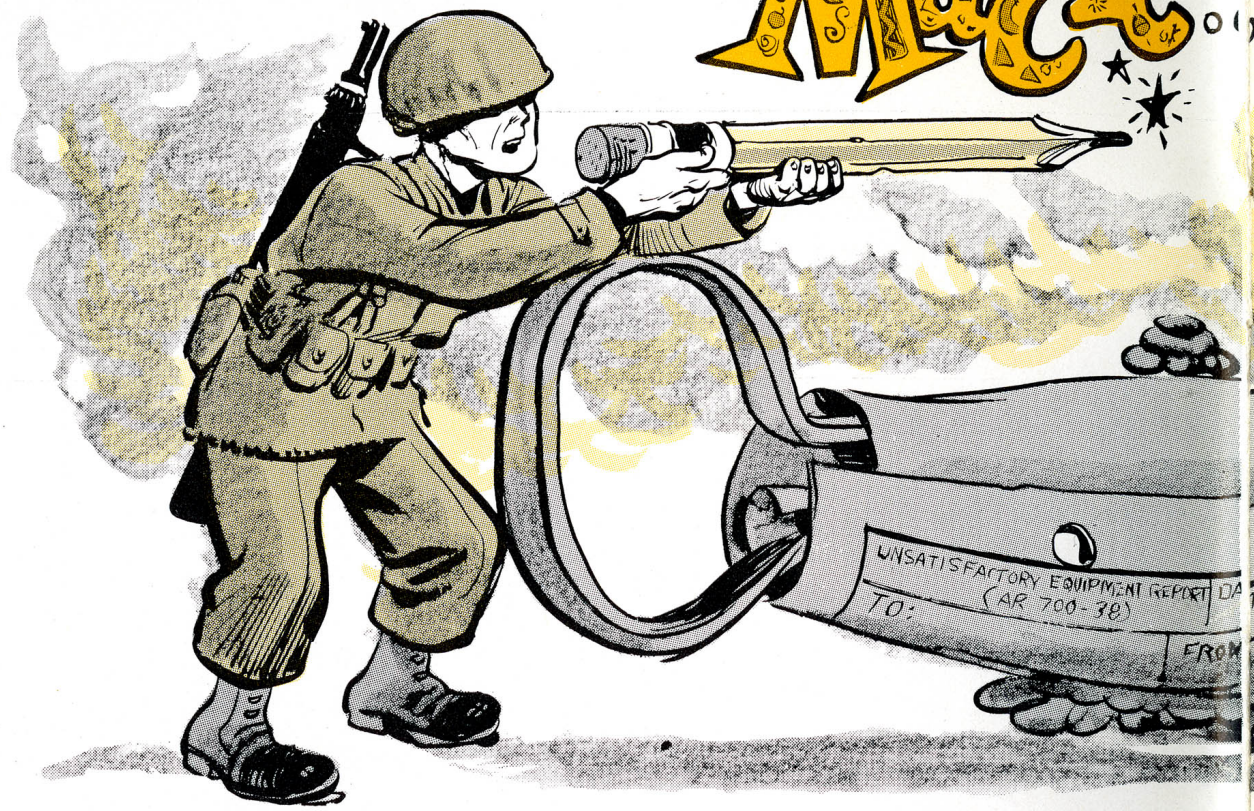
1960 Series

Al Grant

THE PREVENTIVE MAINTENANCE MONTHLY



YOUR UER...IT'S Magic



When you've got a gripe about your equipment . . . it's not designed right, it won't work like it ought to, it seems to have defective parts, or it just won't do the job it's supposed to . . . what do you do?

You can't wave your Uncle's magic wand and all your troubles will vanish. Not quite. But you can do something that's almost that easy.

You use the UER. Its proper name: DA Form 468, Unsatisfactory Equipment Report.

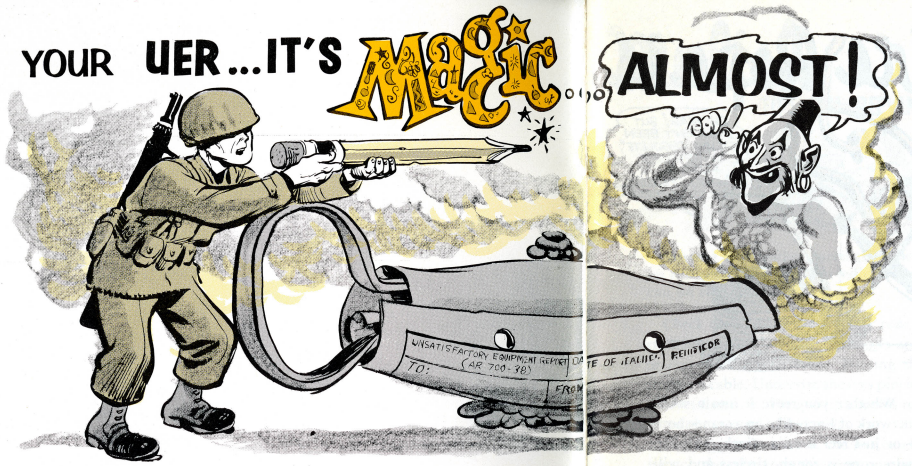
The only "magic wand" you have is your pencil for filling in all the blocks on the UER that apply to your equipment that's unsatisfactory.

It's real important that you get down the complete identification, model, nomenclature, serial number, manufacturer, contract number and conditions under which it's been operating.

Tell exactly what went wrong. Send along a picture or sketch if it'll help explain what happened. (You'll want to scan AR 700-38 for the poop on exactly how to fill out the form.)

What do you do with it? Send it direct to the chief of the technical service that provides your equipment. The addresses are in AR 700-38. (Some commands require that you send a copy to their headquarters; that's fine, but the main thing to remember is to get that UER in direct to the tech service chief.)

YOUR UER ... IT'S Magic ... ALMOST!



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What'll he do with it?

He'll give it to his engineers and design men who developed your equipment. If the problem is real serious (it's a safety hazard or will damage your equipment) they'll put out a modification. Or they'll include a change when new equipment is designed or manufactured.

It's real important that you—as the man who uses and maintains Army equipment—shoot in the UER. It's the best way the technical service designers can learn how the equipment is working, how good their designs are and how good the manufacture is.

Keep them informed with the UER. That's the way they can keep improving your equipment so you'll always have the world's best.

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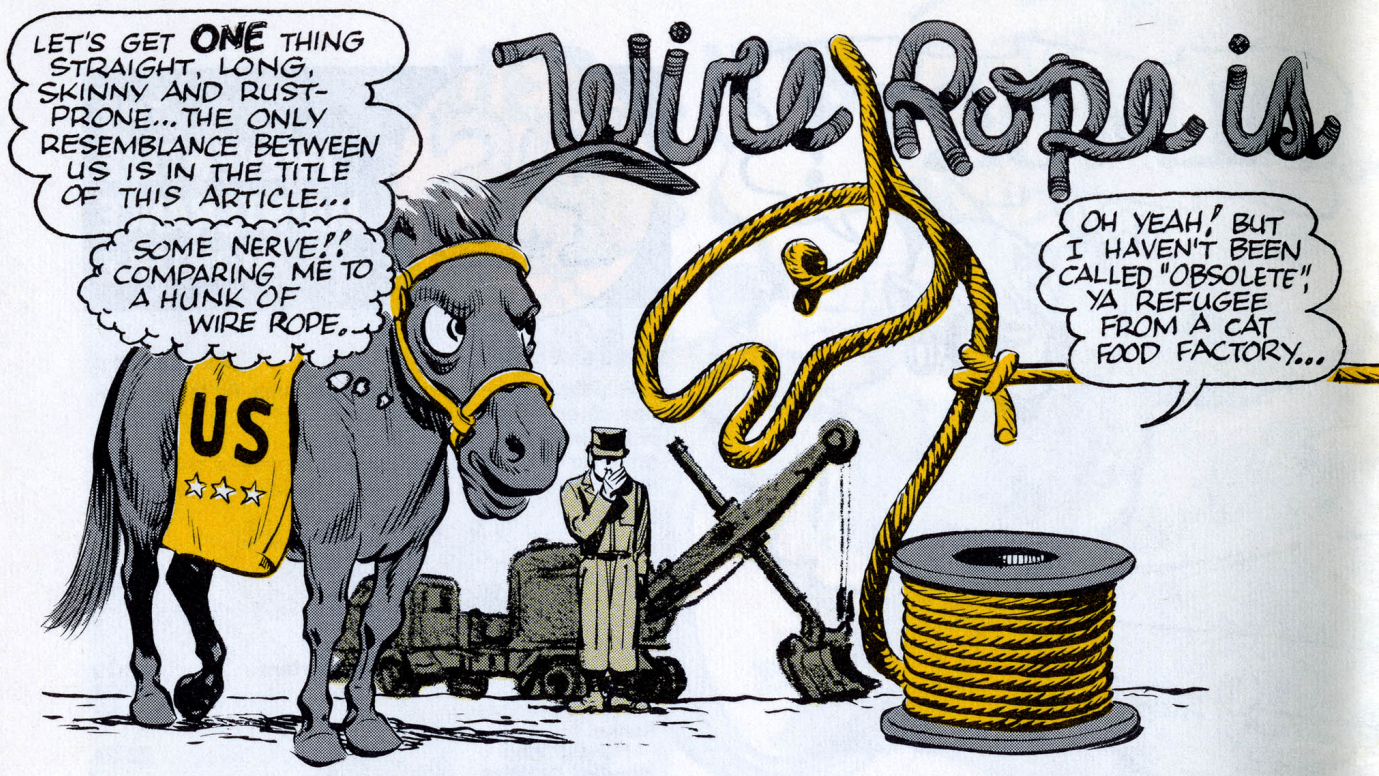


Like the old Army mule, wire rope will haul away from sunup to sundown —if you handle it right.

Handled wrong, wire rope can lash out with a man-killing kick, foul up your rig seven ways from Sunday, and run your operating costs sky high.

Whether you reeve it into a whole network of lines—like on a crane-shovel —or just reel it on a winch, well-kept wire rope is tough, tireless and willing. Wire rope is also delicate, mean and dangerous when neglected or abused.

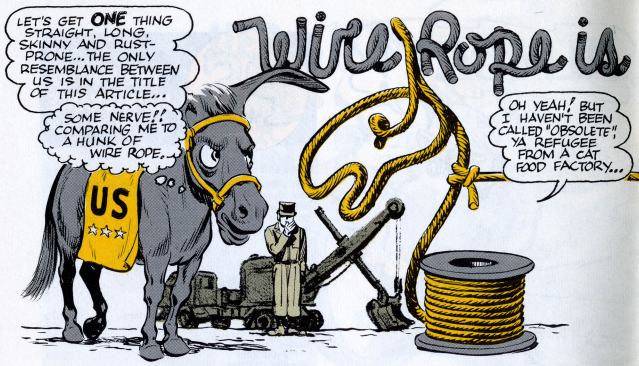
ROPE STRENGTH AND WEAKNESS

Stranded construction is the key to wire rope strength. By sharing the strain between core and strands, wire rope picks up a load with more "give" than any single line of the same size. It can bend over sheaves and wind on drums with little loss of load-hauling power.

But, this stranded makeup that makes wire rope strong is also the key to its weakness. Even with careful handling, there's constant wear as the strands rub against each other while under load and the line bends over sheaves and drums.

Careless handling—jerky loading and unloading, sloppy spooling on drums, power pulling on loops, lack of lubrication—speeds up wear and kills cable long before its time.

Wire Rope is Mulish



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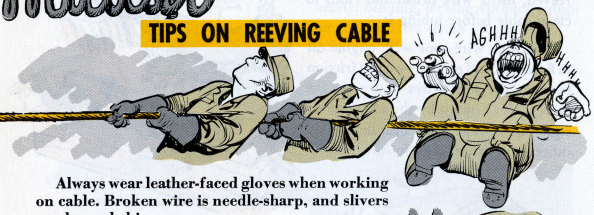
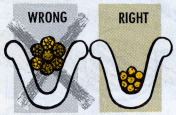
TIPS ON REEVING CABLE



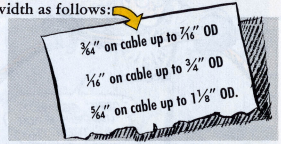
Always wear leather-faced gloves when working on cable. Broken wire is needle-sharp, and slivers can be real skin scrapers.

Check each sheave to be sure it runs freely, is the right size for your cable, and shows no bent flanges or corrugation from wear. Binding sheaves put a strain on cable. Undersize sheaves pinch it. Over-size sheaves flatten it. Banged-up sheaves tear it. Corrugated sheaves grind it down.

The bigger the sheave, the less bend and wear it puts on the wire rope that runs over it. This is why recommended standards on sheave diameter run up from 24 times the wire rope diameter. This is also why replacement rope should not be thicker or stiffer than the authorized material.



Sheaves also need to be wide enough in the groove to let wire rope run without binding or pinching. For free-running operation in the sheave groove, you allow extra width as follows:



Keep uncoiled cable clear of other mobile equipment that could cross the cable and crush its strands.

When equipment is ready for reeving, you pay out new cable straight from the rolling coil or mounted reel. When spooling cable from reel to drum, you wind top-to-top or bottom-to-bottom so's to avoid reverse bends that twist cable.

Mulish

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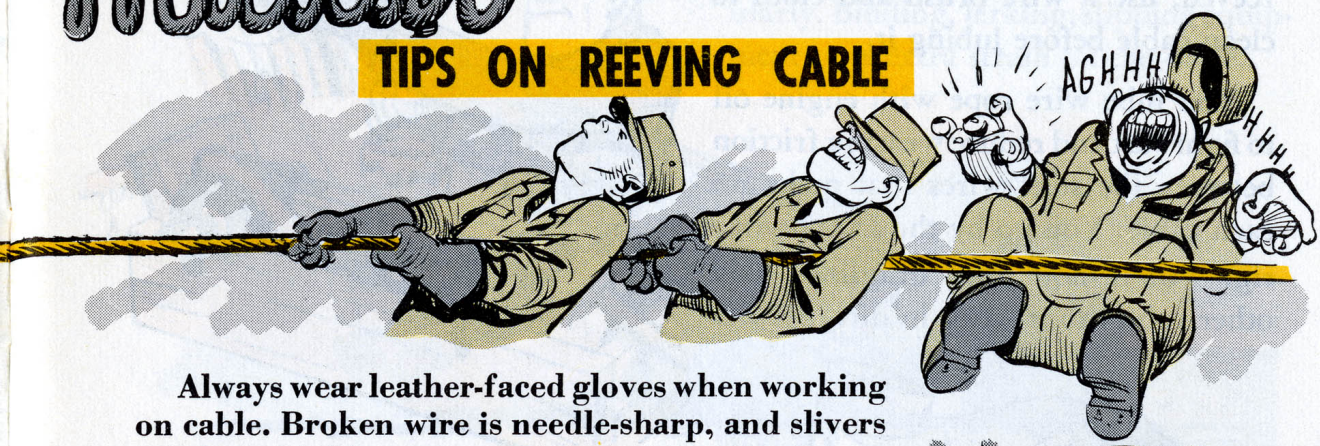

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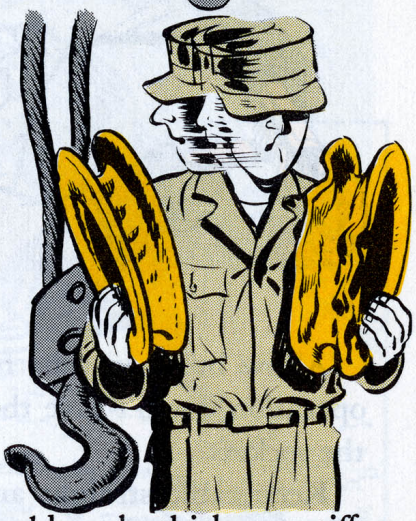

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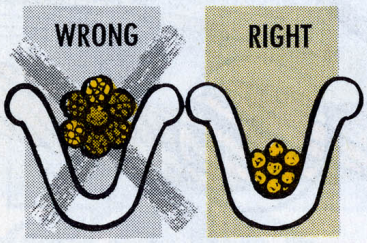

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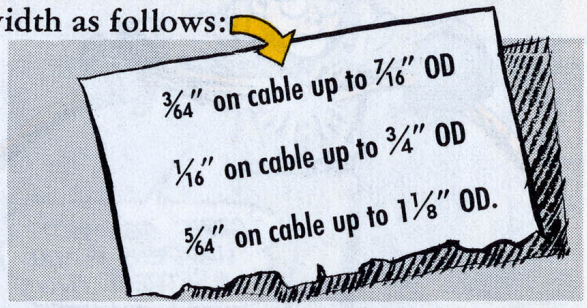

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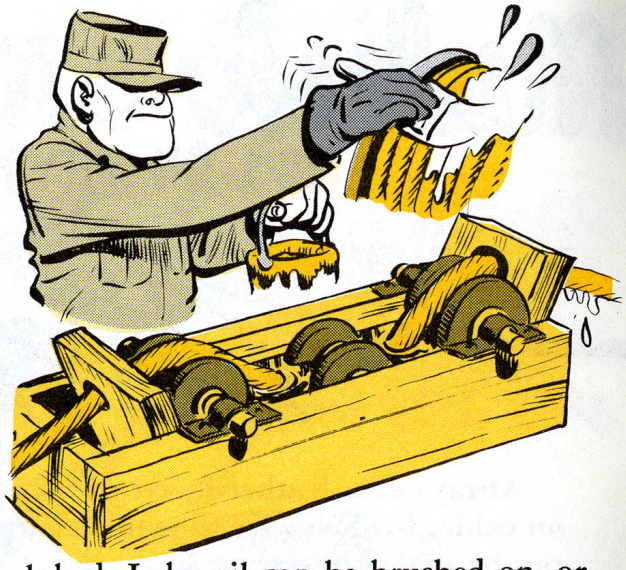
After a wire rope hookup has been reeved, use a wire brush and cloth to clean cable before lubing it.

You lube wire rope with engine oil to fight rust and reduce wearing friction between the steel wires that make up each cable. You go by the LO on your rig. You'll note that draglines, and other cables that work in dirt, are not



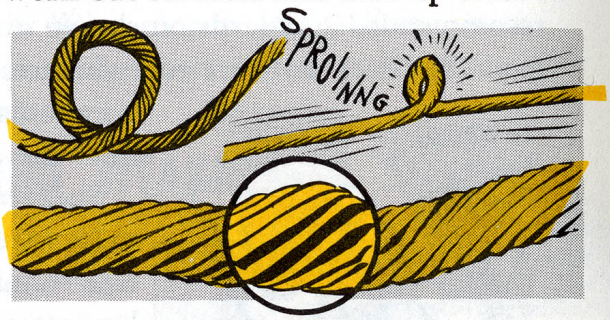
lubed. Lube oil can be brushed on, or applied by running the cable slowly through an oil bath.

Always clean and lube cable before you store it.

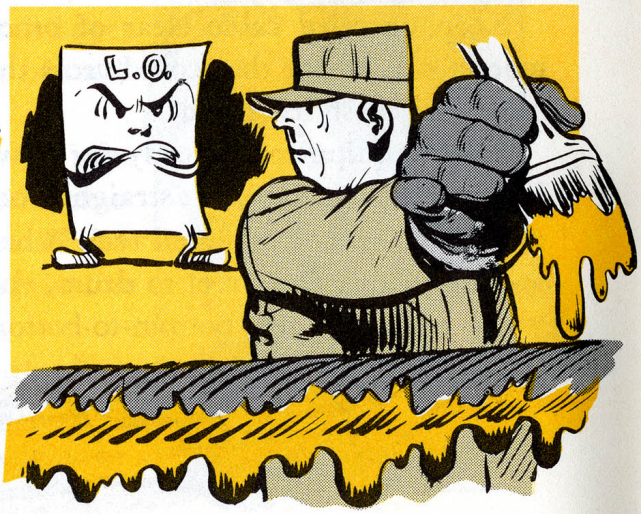
OPERATION TIPS

Allow break-in time for new cable. Immediate heavy loading and high speed operation doesn't give the cable time to work out stiffness and take up slack at the sockets.

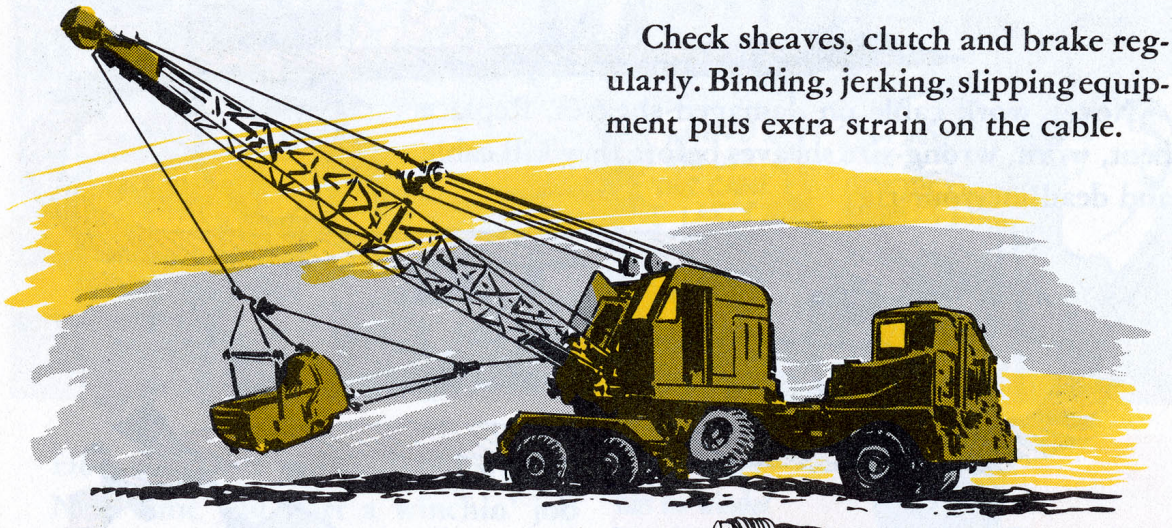
Keep cable straight and taut. Slack cable will loop, and power pulling on loops will cause kinks that ruin cable. Kinked cable is weak, and will snag on sheaves.



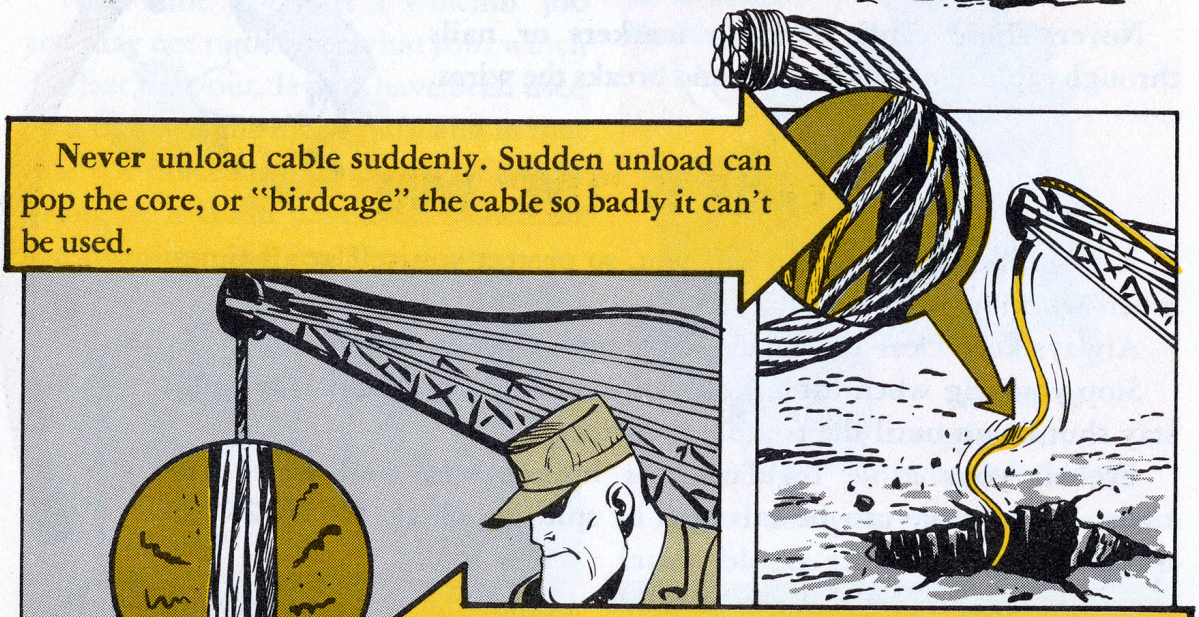
Lubricate by LO regularly but avoid over lube that will pick up dust. Dirty, dry, brittle cable puts an extra load on power equipment, wears out fast, and sets up a safety hazard.



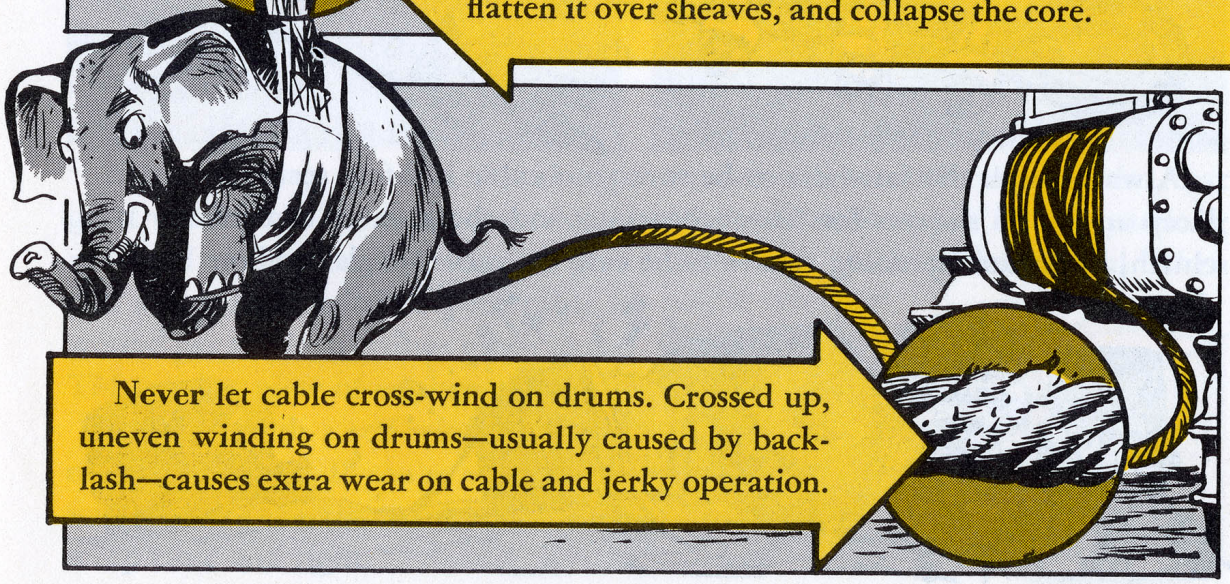
Check sheaves, clutch and brake regularly. Binding, jerking, slipping equipment puts extra strain on the cable.



Never unload cable suddenly. Sudden unload can pop the core, or "birdcage" the cable so badly it can't be used.

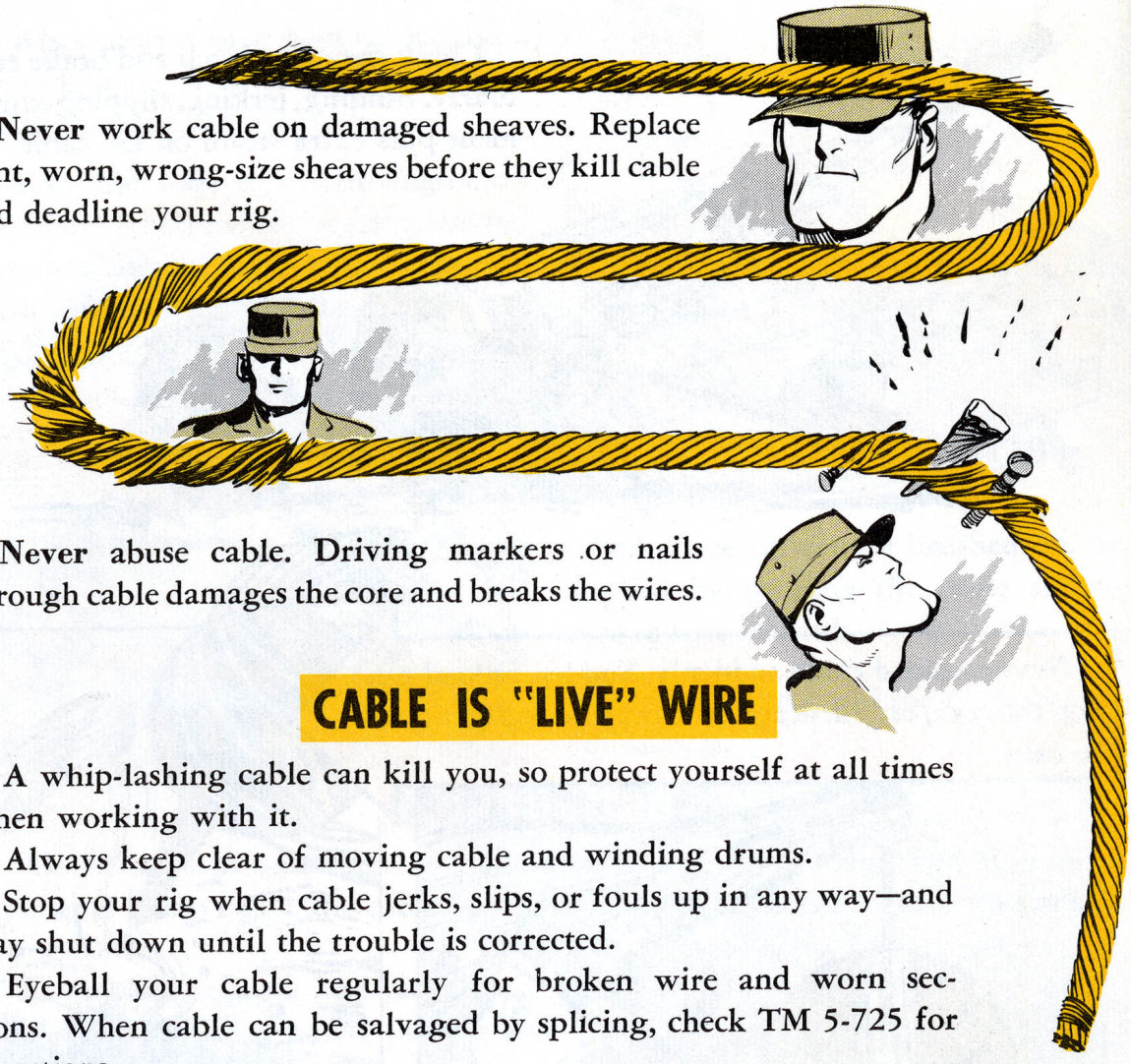


Never overload cable. Overloads stretch cable, flatten it over sheaves, and collapse the core.



Never let cable cross-wind on drums. Crossed up, uneven winding on drums—usually caused by backlash—causes extra wear on cable and jerky operation.

Never work cable on damaged sheaves. Replace bent, worn, wrong-size sheaves before they kill cable and deadline your rig.



Never abuse cable. Driving markers or nails through cable damages the core and breaks the wires.

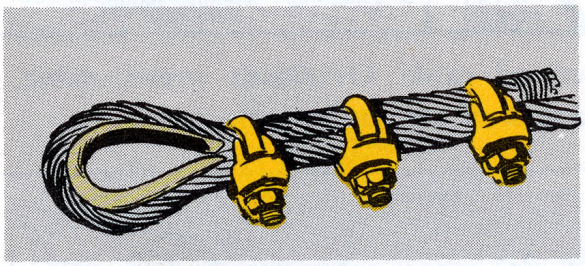
CABLE IS "LIVE" WIRE

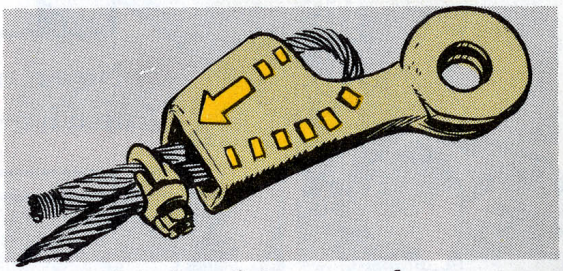
A whip-lashing cable can kill you, so protect yourself at all times when working with it.

Always keep clear of moving cable and winding drums.

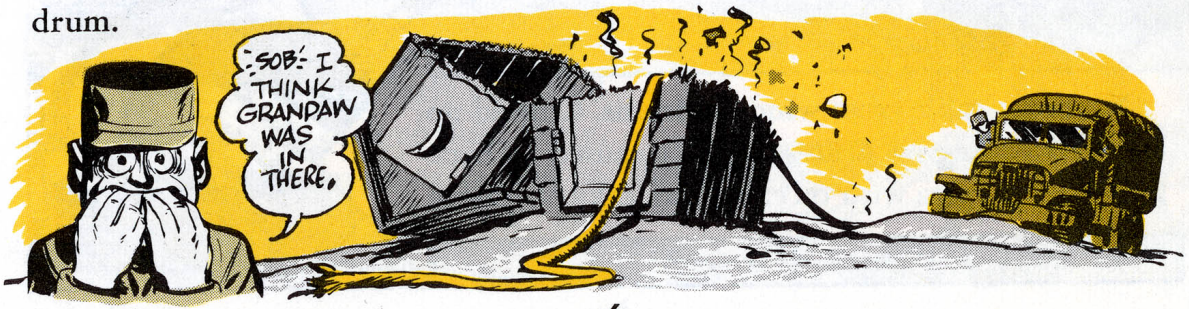
Stop your rig when cable jerks, slips, or fouls up in any way—and stay shut down until the trouble is corrected.

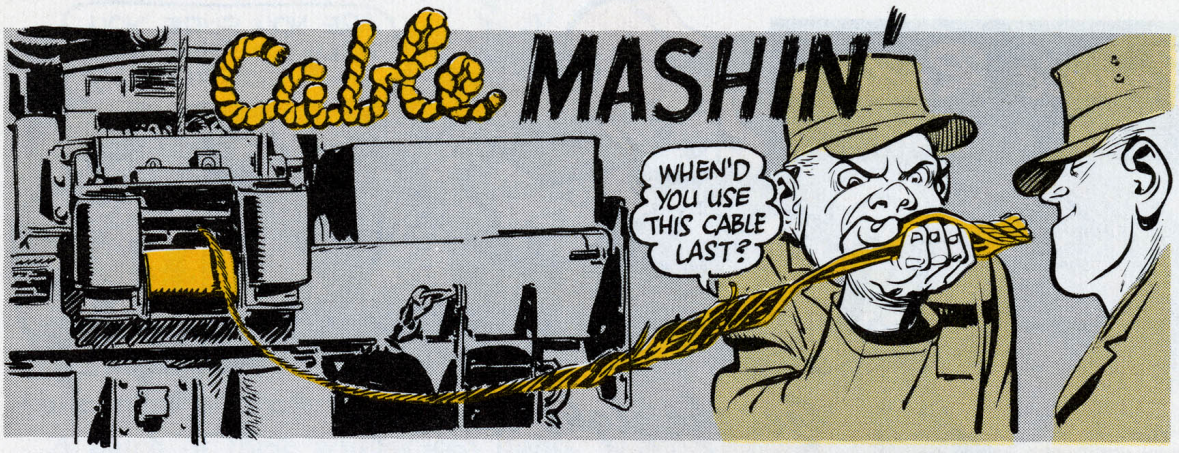
Eyeball your cable regularly for broken wire and worn sections. When cable can be salvaged by splicing, check TM 5-725 for directions.





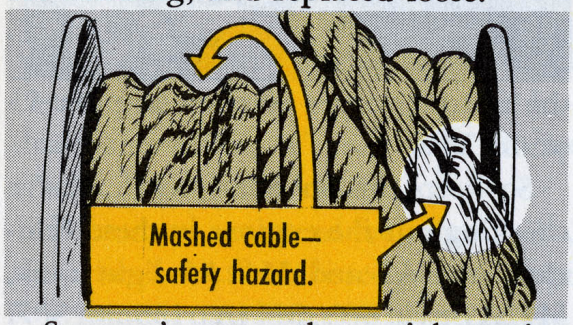
Always check the fasteners to be sure your cable is safely secured. Keep an eye on sheaves for frozen bearings and check cable control clutch, brake and spooling sheave to be sure the cable winds level on drum.





How long since you used your winch?

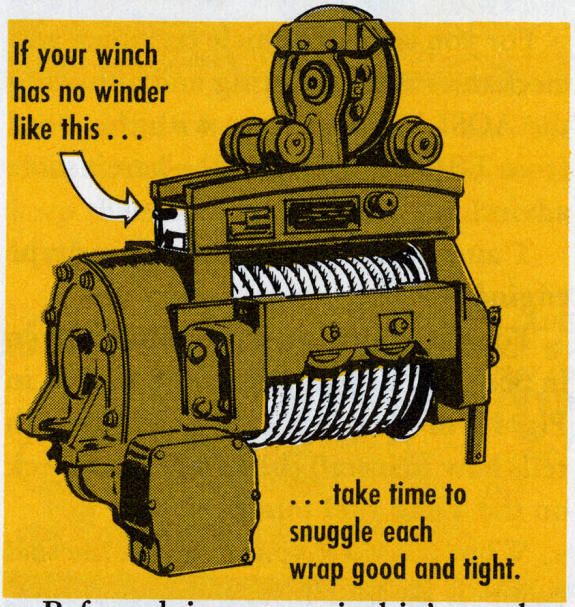
Next time you start a winchin' job you may not remember what your winch did last time out. It may have been used on a lightweight lift or pull, and in that case the cable may be loose around the drum, or it could have been pulled off for cleaning, and replaced loose.



Say you've got a heavy job coming up. The strain is heavier—a lot heavier —than last time, and the outer wind of tight cable will be mashin' itself through those loose layers. After a gnawin' like that the cable's a real safety hazard.

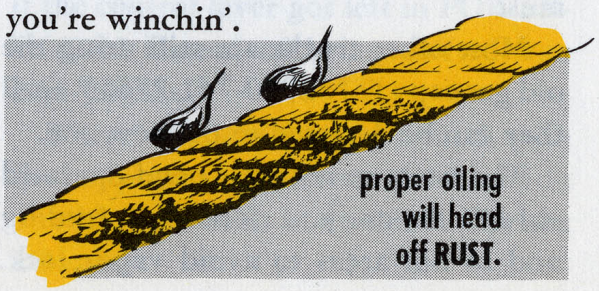
Before making any lift, it's always good winchin' to see that your cable is rewound with enough tension to give you a nice tight wind or your cable is wound per the instructions given in the TM for that piece of equipment.

A winch with a self-winder'll lay it on nice and even. If you're without the winder, take the time to snuggle each wrap close and tight.



Before doing any winchin' or when tackle blocks are used, be sure everybody is clear. They've been known to snap and zip a good 300 yards — real dangerous. Never take chances with any cable . . . start your winchin' slow and easy 'cause sudden jerks can snap them.

Remember that proper oiling of those strands will head off rust, and also, that proper drum wrappin' is the key to long cable life. And do be careful when you're winchin'.



Connie Rodd's

"SHORT 'N SWEET DEPT"

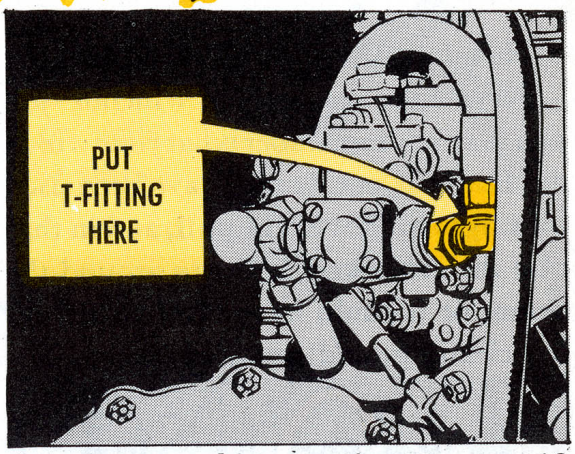
Get the right reading

For you combat vehicle crewmen and mechanics who're testing and adjusting the AOSI 895-5 engines with the word from TB 9-277 (8 Apr 59)—here's some advice.

T'aint necessarily right for your type engines.

Forget about the test procedures given in Section IV, para 12, and pictured in Fig 10 of this tech bulletin . . . which tells how to install the tester kit to check on the Titan fuel pump.

What you do to test or adjust the fuel pump is to first install the tee fitting, which comes with the testing kit, at the **outlet** side of the pump. Then hook up your tester to this tee fitting and follow



the test procedure starting at para 13 of the TB.

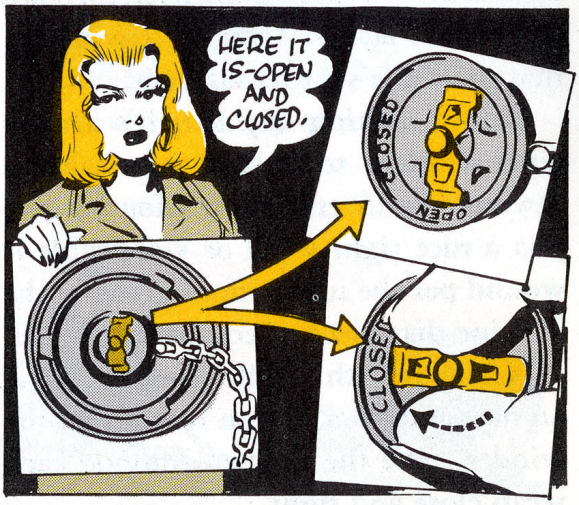
So keep this in mind when you're checking out the engines in these vehicles: M41A2 and M41A3 light tank, M42A1 twin 40's, M44A1 155mm SPH and the M8A2 hi-speed tractor.

Caps right!

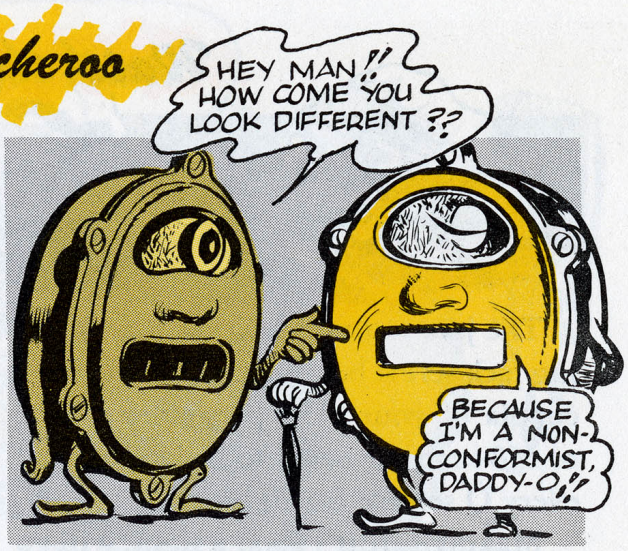
Running around with a 5-ton G744-series wheeled vehicle? Then you'll want the gas-tank filler cap, FSN 2910-141-9758, with the hand-operated vent valve. An MWO put it there, so it's a must.

Most other trucks are still using the old gas cap (FSN 2910-741-2761) until they can be depleted to the new one.

The new cap with the hand-operated valve is the one you close when fording and in hot areas to avoid vapor lock.



Switcheroo



Supply may be handing your truck a front Light, Marker, Clearance assembly FSN 6220-776-2614 which, at first glance had a phony look 'bout it.

What you spotted wrong is a BO lens that got put in backwards. The lens is white 'stead of black.

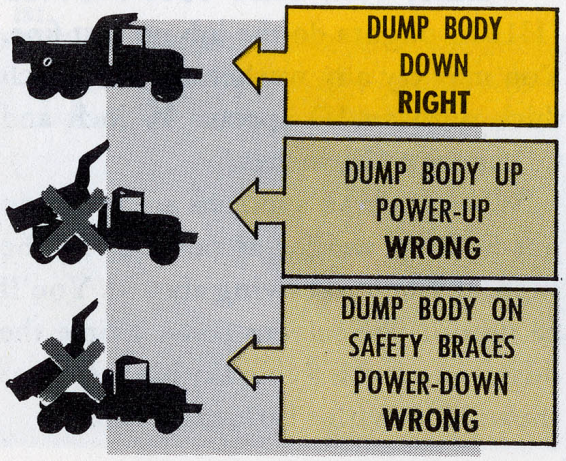
A batch of these white-faced lights slipped into the system (marked with the letters EMPCO.) No need to reverse 'em 'cause the switcheroo's not supposed to affect the illuminating qualities any. Besides, the hold-down stake'll only break off if you pry it up.

Shouldn't be any more put out like this, as Ordnance jumped on this one to keep them lookin' like they used to . . . black side out.

Scratch two

You can scratch two of the oil-level checks you've been making on the hydraulic reservoir of your M51 dump trucks. Don't need 'em.

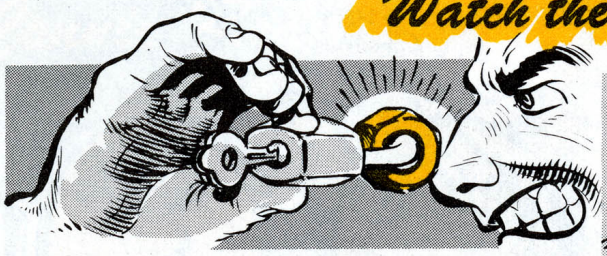
Whatever you read in other pubs, only the check that's listed in note 14 of LO 9-8028 (15 Aug 57) is necessary. That's the one with the dump body down in travel position. And the reading on the gage should be at the third marker from the top. This is the latest word on it.



One of the readings used in the past . . . with the dump body up on the safety braces . . . could be dangerous. 'Specially if the control lever got left in POWER-DOWN instead of being shifted into NEUTRAL.

There's no need to make a check with the body up at all. Just one check will do . . . with the dump body down like the LO says.

Watch the jam nut

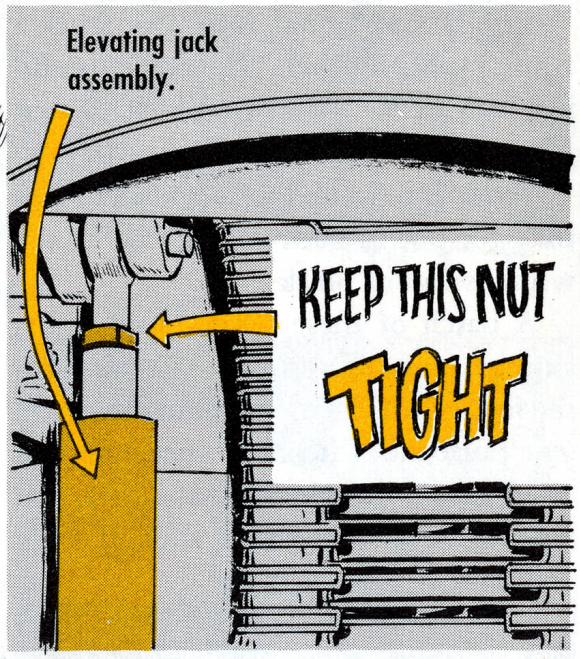


The jam nut which keeps the elevating jack screw bearing tight in the M13 cupola of your M59 personnel carrier or M84 mortar needs to be looked at at every Q service for tightness.

Making sure it's good'n tight, will go a long ways toward hitting the target, 'cause when it's loose, your accuracy is reduced.

Once the nut backs off, the mechanism'll once more hafta be readjusted and realined before it'll be on the button.

One way to keep it in shape is to get your paws on a self-locking nut that'll engage from both sides. Once you get a



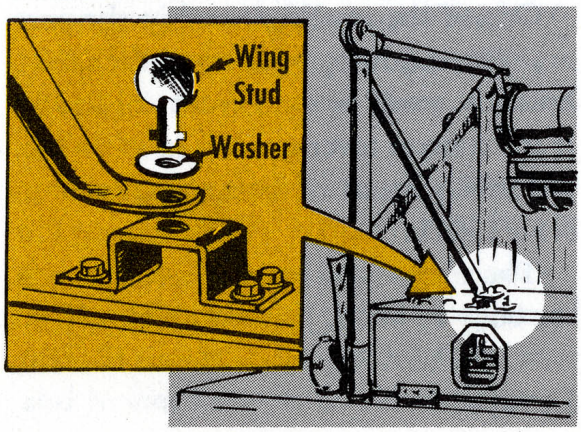
lock nut like this, the jam nut can be turned into supply as excess. You'll need a 5/8. 18-UNF-3B self-locking nut to do the job.

Play-in-stud

The stud holding the dust screen leg support into the bracket on top the stowage boxes of your M56 SP Gun could stand a little beefing up.

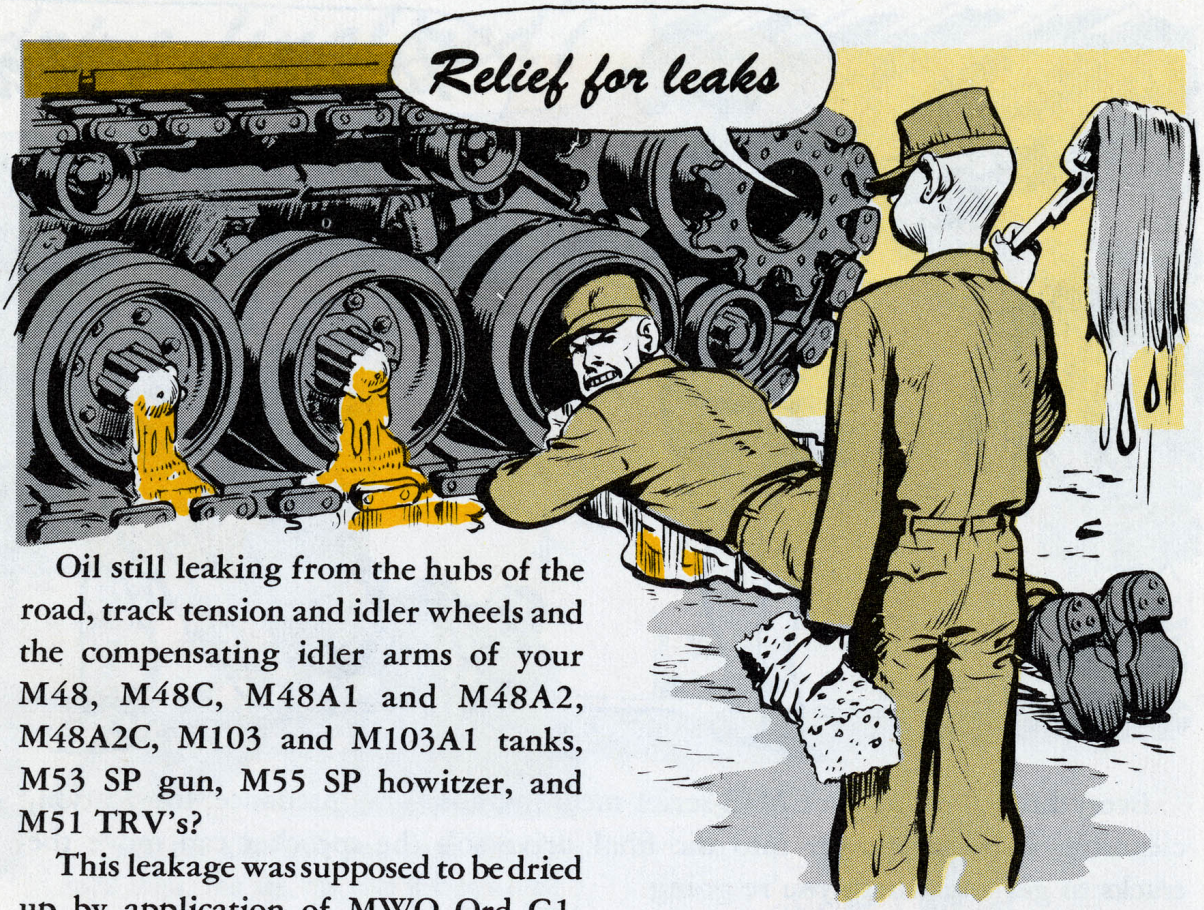
Seems the base of the leg running to the stowage boxes has a loose fitting stud connection.

What you can do is take care of the slack in the stud by slipping a flat washer over the stud (stud remover) and over the hold-down pin, then put the stud back into the bracket and get the whole works tied down good'n snug so that it takes a pair of pliers (almost) to turn 'em.



Washer, Flat, FAN 5310-5434488 (H101) oughta do the job up just fine. You may try any washer about 1/16 inch thick with an ID approx 5/8 inch and OD approx 1 5/16 inches.

When your 56's screens are up try to put as little weight as possible on the support when you swing aboard. You'll be needin' the screens come a time the dust is or snow is flying sky high, so treat the support with a little extra care.



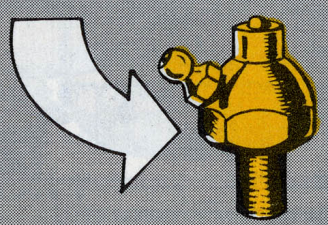
Oil still leaking from the hubs of the road, track tension and idler wheels and the compensating idler arms of your M48, M48C, M48A1 and M48A2, M48A2C, M103 and M103A1 tanks, M53 SP gun, M55 SP howitzer, and M51 TRV's?

This leakage was supposed to be dried up by application of MWO Ord G1-W106. It called for replacing the pipe plugs with lube fittings and use of GAA amendment 3 instead of oil.

Seems, though, the lube fittings listed in the MWO would let a lube man overfill with grease and cause the hub seals to pop. So now a new lube fitting's going into the system to help stop the popping of the seals.

The latest word for the one you want is:

FITTING, LUBRICANT PRESSURE RELIEF, S, CAD-PLTD, 1/8-IN NPTF, 1/2-IN LG, 15-25 PSI RELIEF PRESSURE (DRY SEAL PIPE THREAD), FSN 4730-542-5683.



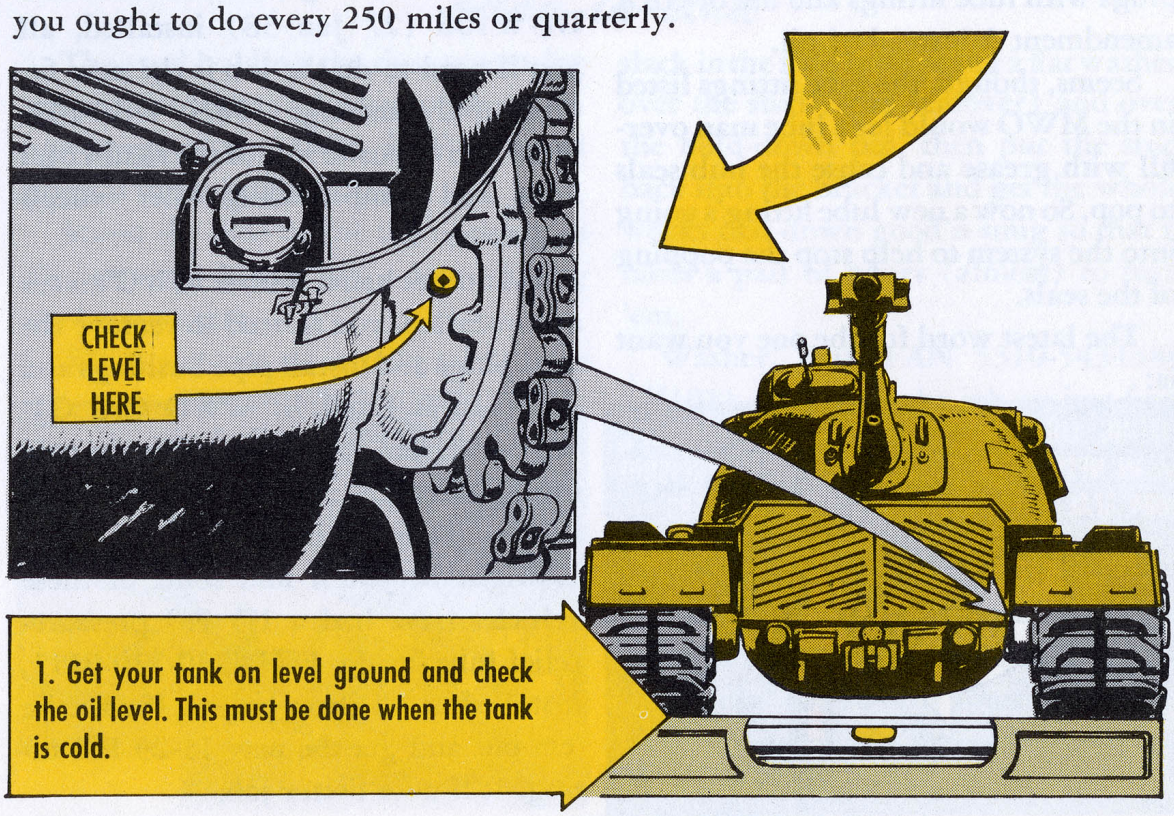
If your vehicle had either MWO Ord G1-W106 (15 Aug 57) or MWO Ord G1-W106 (27 Jan 58) installed, all you'll need to do the job is the new fittings and bushings (FSN 4730-141-9098) on opposite side of the roadwheel hubs and compensating idler wheels and arms.

On t'other hand, if these MWO's were not installed, you'll need to remove the pipe plugs and install pipe bushings and other parts listed in MWO Ord G1-W106 (27 Jan 58). Then put in the new fittings and make with the grease gun and you're in business.

Might be you'll find some of these vehicles have had a 1-5 PSI pressure-relief lube fitting, FSN 4730-330-0111, installed at all these points. If so, take 'em out and get the new 15-25 PSI fitting. It'll do a better job.

Everything done to your M48-series medium tanks—maintenance, lubrication, cleaning—is to get power into the final drive so's the sprocket can move the tracks to get you where you're going.

You can get good results in the end by making sure the final drives—at the rear of the tank between the hull and the sprockets—are lubed right. Here's what you ought to do every 250 miles or quarterly.



1. Get your tank on level ground and check the oil level. This must be done when the tank is cold.

Is your final drive finalized?

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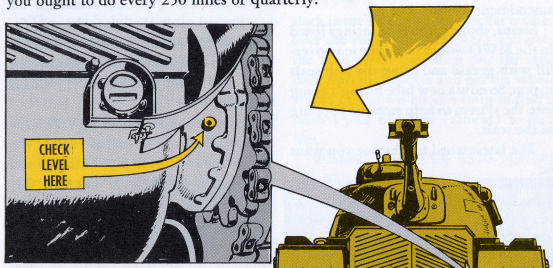

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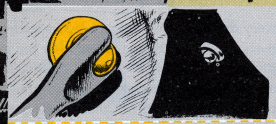


2. Use a ½-in square drive plug on your ratchet handle to unscrew the filler plug. (On some tanks this plug is on the side.)

3. Check the filler plug and clean off any metal chips. You see, the plug is magnetized to attract metal chips and powdered metal from the oil.

4. Check to see if the oil's up to the bottom of the hole. If it is, you've got no worries until the next inspection. If it's below the plug hole, squirt OE in, as spelled out in your LO, until the level reaches the bottom of the filler plug hole.

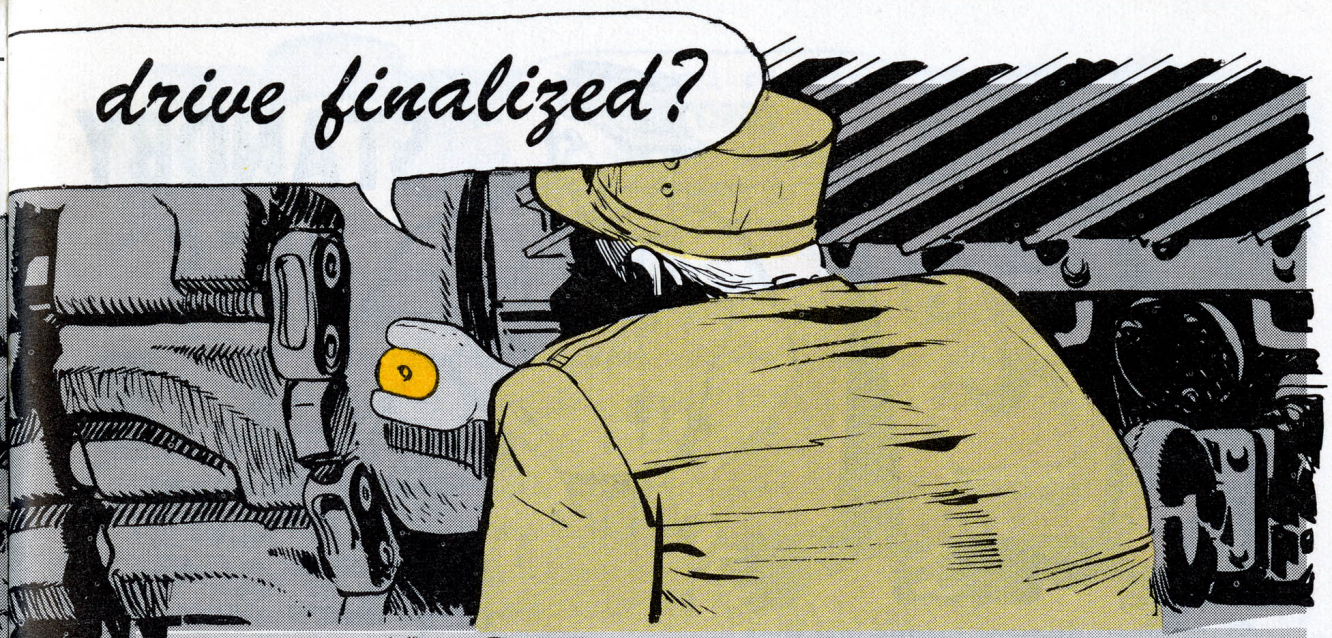
5. When oil starts dripping from the oil level and filler hole, screw the plug on.

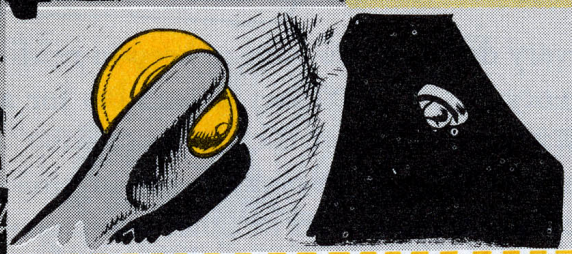
PLUG POOP

Things are a bit different every 750 miles or semi-annually. Then you have to drain all the OE out . . . so you've got to open the oil drain plug. But the oil must be **hot** before you drain. Also, remember to clean the metal chips or powdered metal from the magnetized oil drain plug.

Be on the look-out if you're picking up metal chips on these drain plugs . . . 'cause it's almost a sure sign that trouble is heading your way. No sweat about the powdered metal . . . that comes in normal operations.

Last, fill the final drive with OE as spelled out in your LO.





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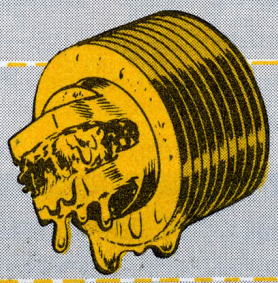

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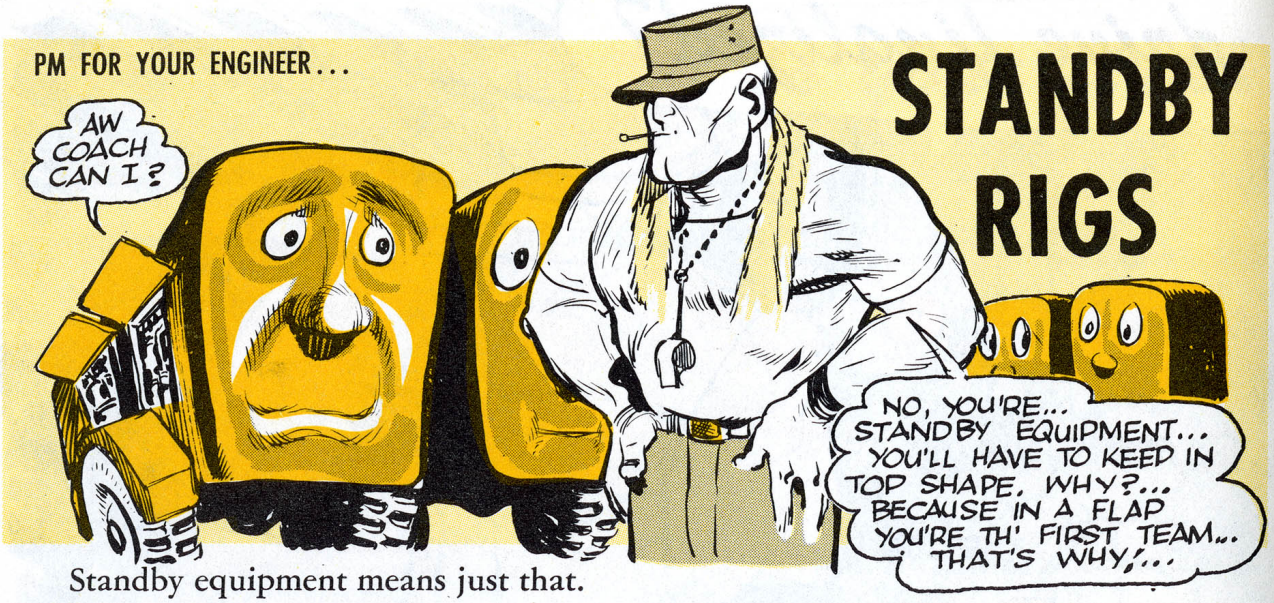
PM FOR YOUR ENGINEER...

STANDBY RIGS



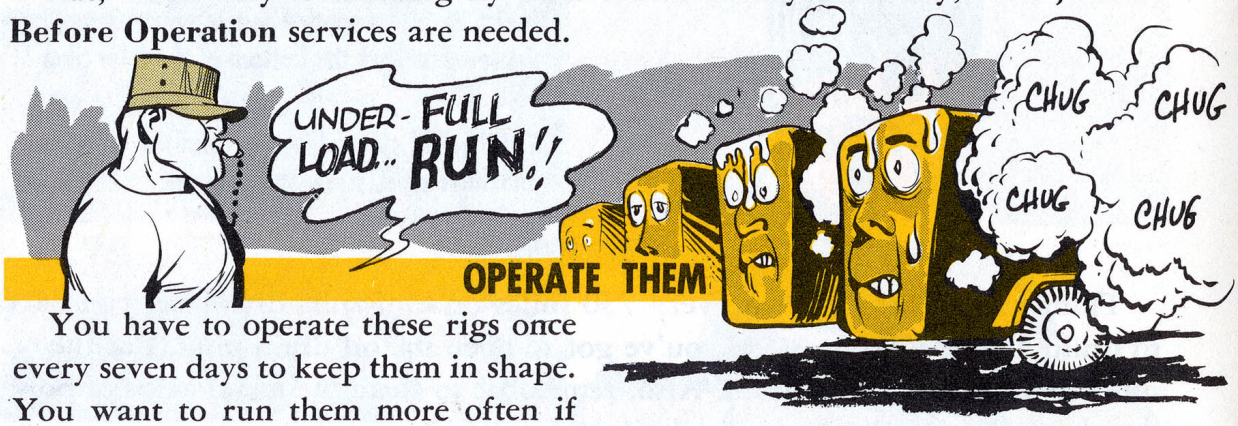
Standby equipment means just that.

These are the rigs that you don't use every day, but you have to keep in readiness to roll right off the line in an emergency . . . like auxiliary generators for a hospital or a Nike site. Your CO decides when equipment is classed "standby".

Now, don't confuse "standby" equipment with rigs you may have in administrative or temporary storage—like snow plows, lawnmowers or other equipment that's not being used at the time. You don't have to pull daily services on equipment in storage.

But, to keep these emergency standby rigs ready to move, you pull your regular **Before Operation** services on them every day. If you operate them, then naturally you complete the PM on them by also pulling your **During** and **After Operation** checks.

But, when they're standing by their lonesome day after day, then just the **Before Operation** services are needed.



You have to operate these rigs once every seven days to keep them in shape. You want to run them more often if they're exposed to bad weather.

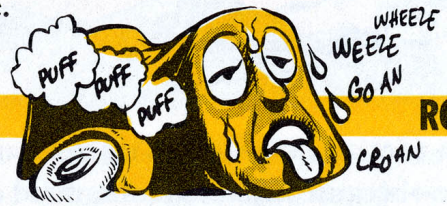
Now, if the equipment has a gasoline or diesel engine, then you run them under load for at least an hour after they reach normal operating temperature for their weekly exercise.

You operate electric-motor-driven rigs for at least one-half hour each week—long enough to be sure that the driven member is functioning properly.

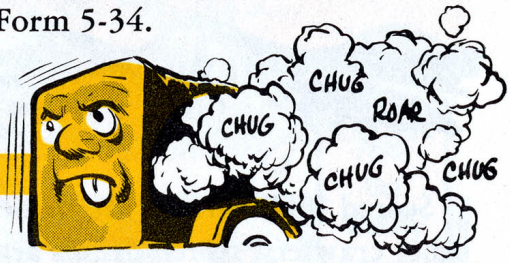
You need monthly operational logs (one copy for operator, one copy for file) for each item of standby equipment to keep a record of your daily and weekly exercise. Mark the forms "STANDBY" in large block letters in the upper left hand corner. You keep them separate from the operational equipment forms for rigs in everyday use.

You also schedule these rigs for services and inspections according to the TM's or TB's that apply.

You record your inspections on gasoline and diesel engine-powered equipment on DA Form 464 and electric-motor-driven stationary equipment on DA Form 5-34.



ROTATE THEM



Now, if you have two or more similar items of standby equipment, you want to operate them on a scheduled rotation. This way each one will get its share of operating hours.

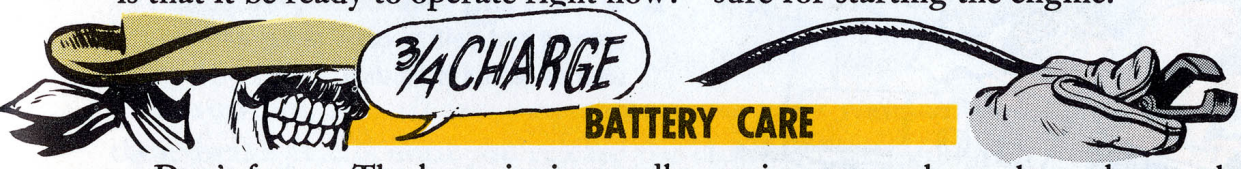
In all cases, however, when they're not in use, they ought to get a daily and a weekly going-over.

AUXILIARY EQUIPMENT

If your standby rigs need special equipment—like heaters—to keep them ready for operation, then the heaters should be in action all the time. An engine that has to be warmed up for any length of time before it can be started won't be able to do its job in an emergency.

The idea behind standby equipment is that it be ready to operate right now! So you may have to operate auxiliary equipment daily in order to make sure your standby unit is ready. You'll want to check the fuel supply and general operation of auxiliary equipment a couple or three times a day.

Also give a look-see twice a day to other equipment—like air pressure starting systems. You'll need the right pressure for starting the engine.



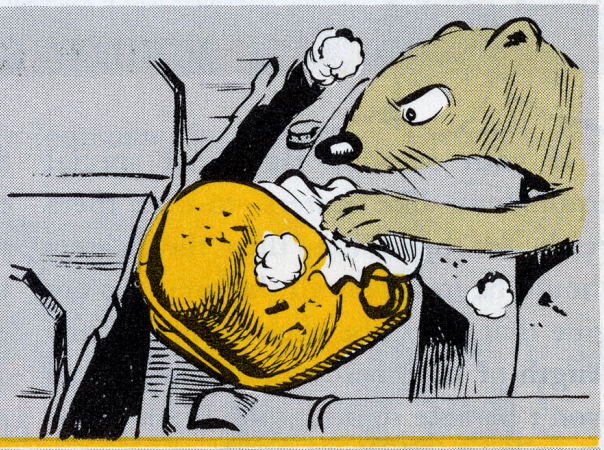
BATTERY CARE

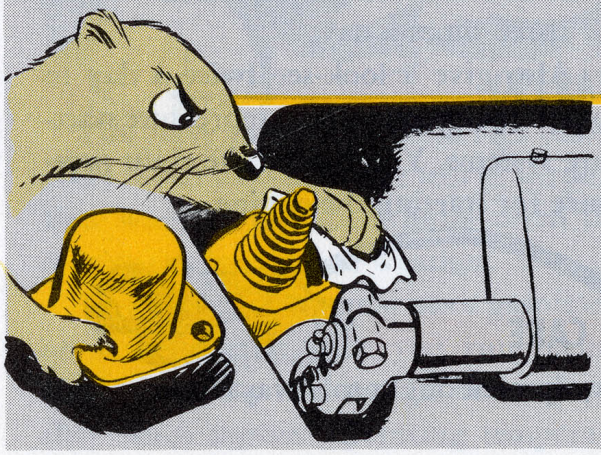
Don't forget. The batteries in standby equipment ought to always have at least 3/4 charge.

Scored brake drums are bad enough news on cars and trucks. On tractors and other crawlers, scored drums are double trouble—because brakes are mounted on the steering clutches, so the whole steering clutch and brake assembly has to be pulled for drum overhaul.

So here's how to keep those drums smooth as a baby's cheek, meanwhile getting more out of the linings—

1. Be fussy as a ferret about cleaning all around the cover plates before taking 'em off to pull your brake maintenance. Fine dust and dirt will chew up linings. Coarse grit will gouge grooves in drums.





2. Be just as fussy about cleaning around the opening and putting cover plates back as soon as service is finished.

NO SCORE IS GOOD NEWS

Scored brake drums are bad enough news on cars and trucks. On tractors and other crawlers, scored drums are double trouble—because brakes are mounted on the steering clutches, so the whole steering clutch and brake assembly has to be pulled for drum overhaul.

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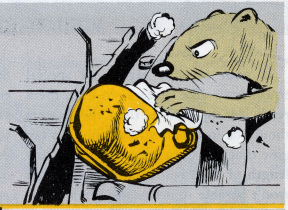

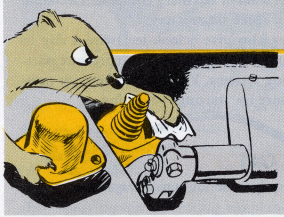

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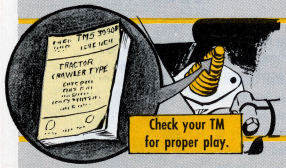
3. In tractors with dry-type steering clutches, drain or flush out any oil seepage once a week. Oil or grease makes linings slip, so brakes feel loose even when properly adjusted. Replace plugs **at once** after draining or flushing the clutch housing.



4. When you're adjusting brakes, leave enough free pedal to be sure the linings don't drag when the pedal's up. The TM for your rig will tell you how much play to allow.

5. Inspect brakes quarterly. Check 'em for worn linings, loose brake anchors and loose or missing bolts connecting the brake bands. Get worn linings replaced before the rivets work through to score the drums.

Meanwhile, like all savvy operators, you keep your clover-kicking boots off those brake pedals until you release the clutch when turning or stopping. Braking against engine power is about the quickest way to overheat brakes and score the drums.

GOOD NEWS

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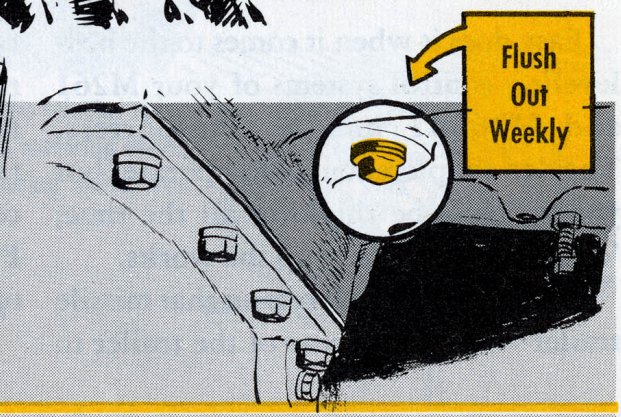

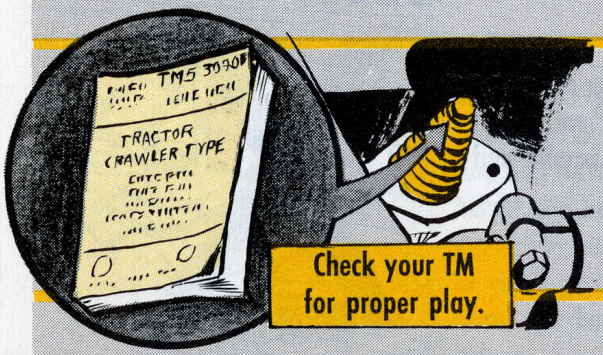

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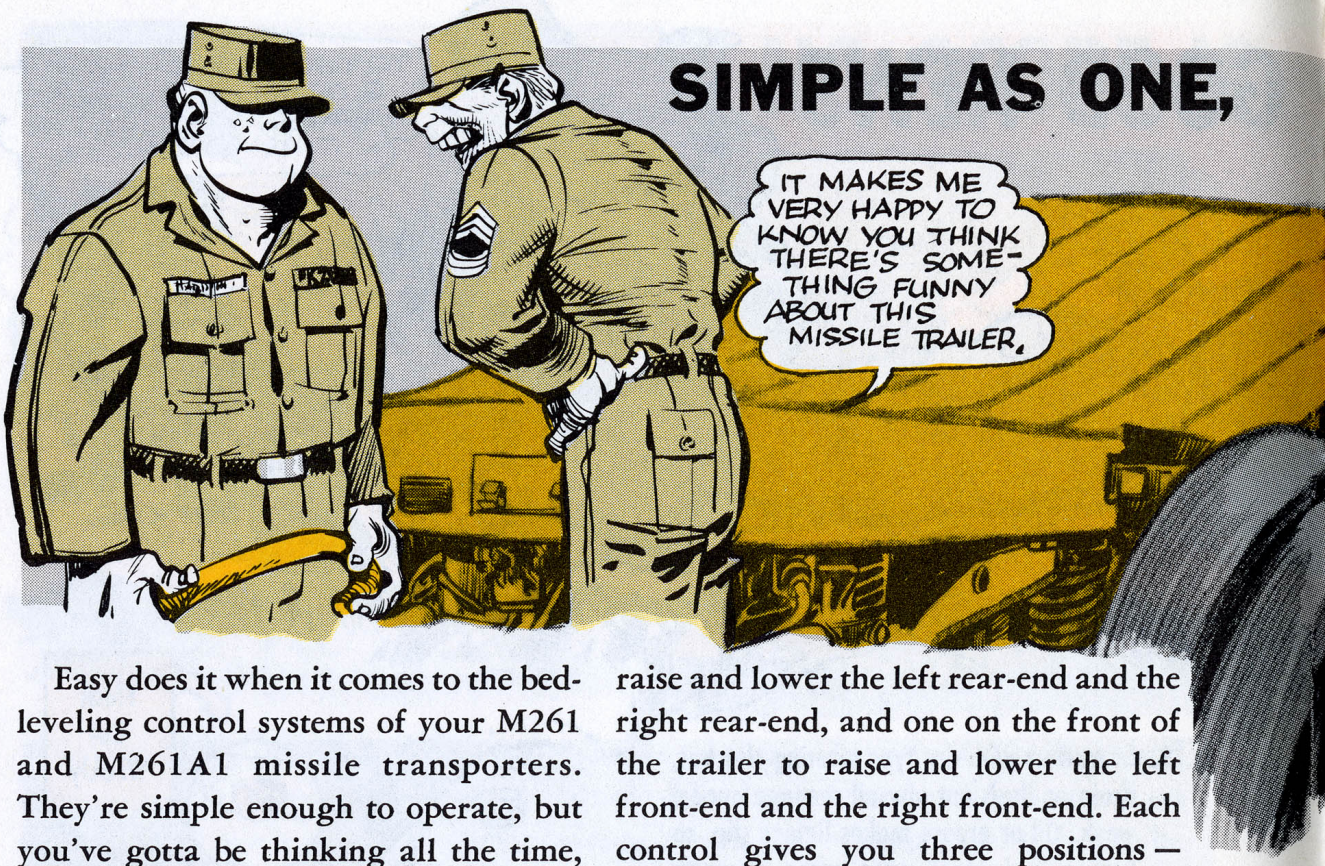
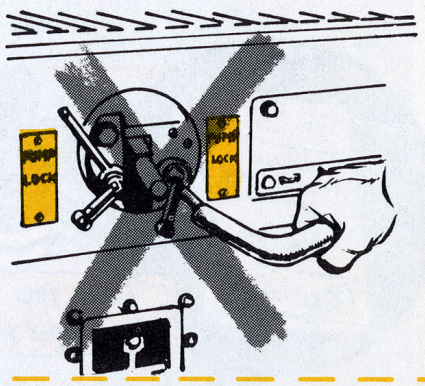
SIMPLE AS ONE,

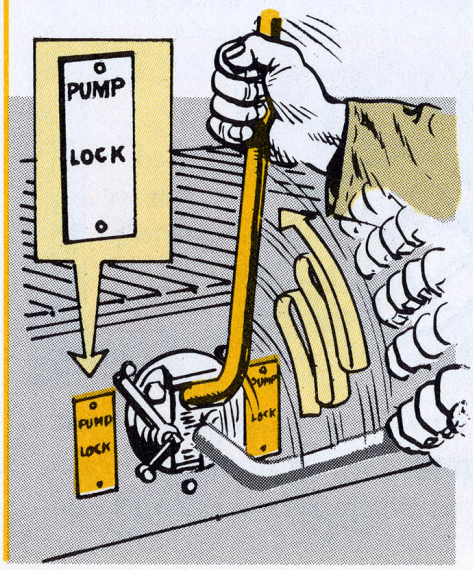


Easy does it when it comes to the bed-leveling control systems of your M261 and M261A1 missile transporters. They're simple enough to operate, but you've gotta be thinking all the time, 'cause one slip'll bug up the works.

You have two controls on that missile trailer—one on the rear of the trailer to raise and lower the left rear-end and the right rear-end, and one on the front of the trailer to raise and lower the left front-end and the right front-end. Each control gives you three positions—PUMP, LOCK, RIDE. Here're a few operating tips on these controls—



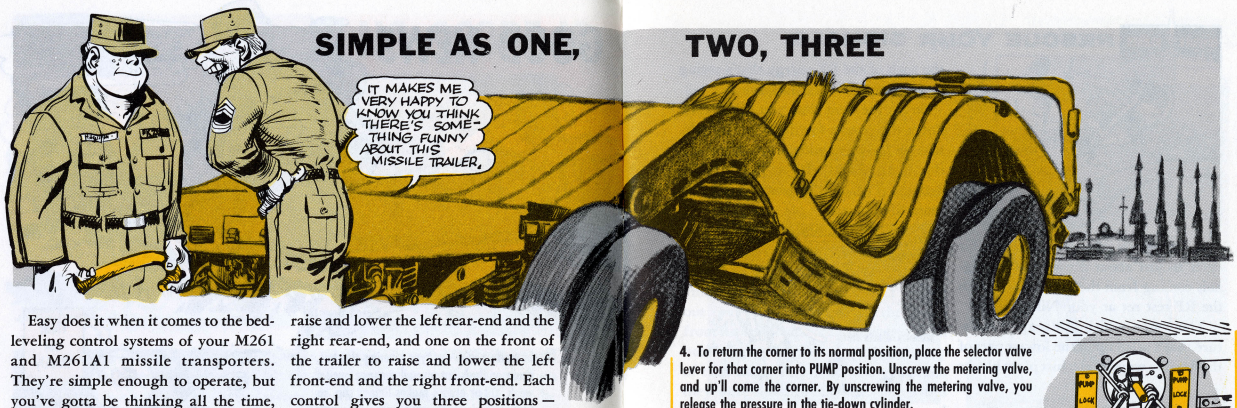
1. Make sure the metering valve levers—there are two on each control—are closed to finger tightness. Lay off tightening them with a wrench or pliers—too much pressure will damage the needle and valve seat.



2. To lower a corner of the trailer, turn the selector valve handle for that corner to PUMP—turn the other selector valve handle on the control to LOCK.

3. Using your pump handle in the pump lever, pump up and down until the corner's lowered to where you want it. When you have it there, change the selector lever from PUMP to LOCK position. Hands off the metering valve, or you'll have to start the whole operation over again. The lowered corner will stay in position until it's released.

SIMPLE AS ONE, TWO, THREE



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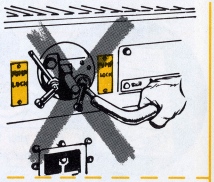

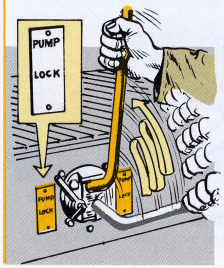

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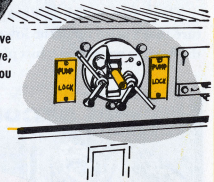
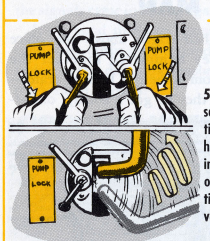


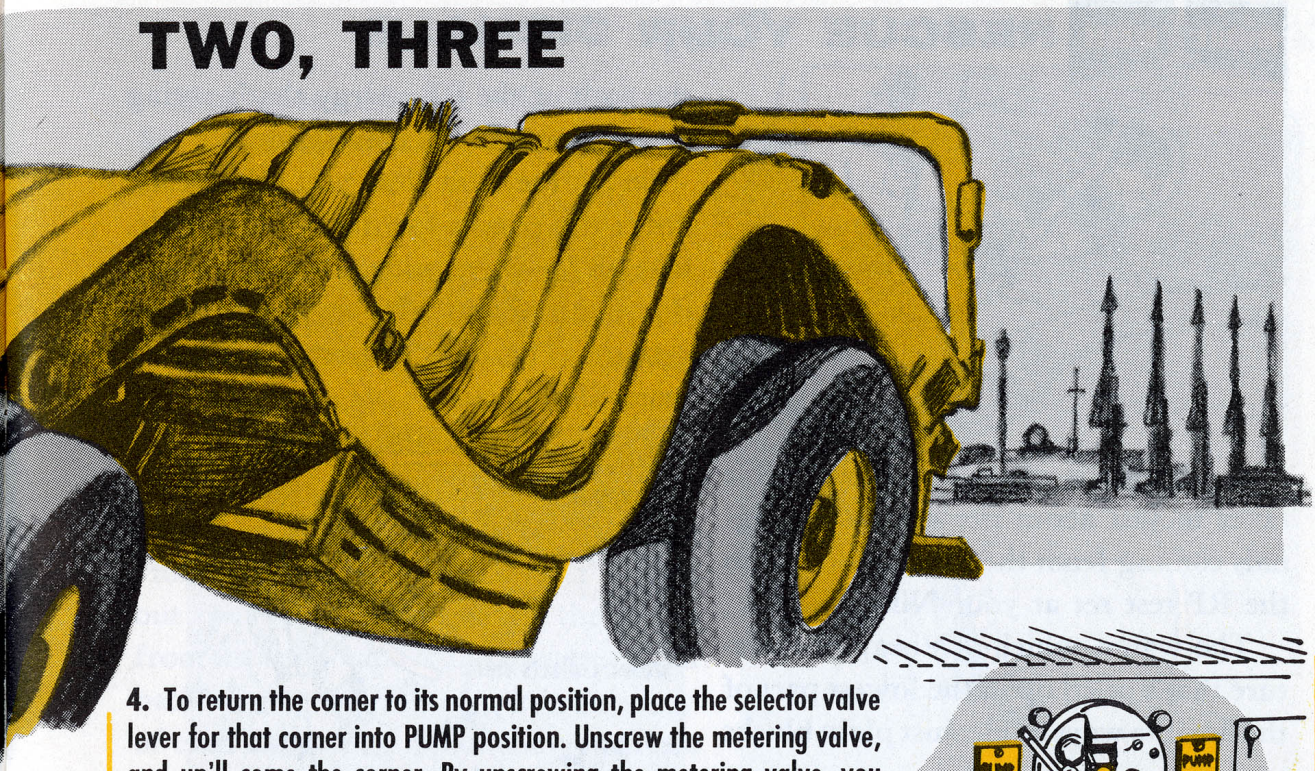


5. You can lower both the left and right corners of the trailer at the same time by placing both selector valve handles in the PUMP position and pumping up and down. When the corners are at the right height, put both selectors into LOCK position. Remember: The metering valves have to be tightened to finger tightness before pumping, or you'll go nowhere. To get the corners back to their normal positions, put both selector valves in PUMP and release the metering valves.

6. This is most important, so stick it up in your noggin: Before moving the trailer, all four selector valves on your trailer must be in RIDE position. If any of the selector valves are in PUMP or LOCK when the trailer's moved, the guts of that tie-down cylinder are gonna be mashed.

Easy enough, huh? All you have to do is keep your mind on what you're doing—you won't go wrong.

TWO, THREE



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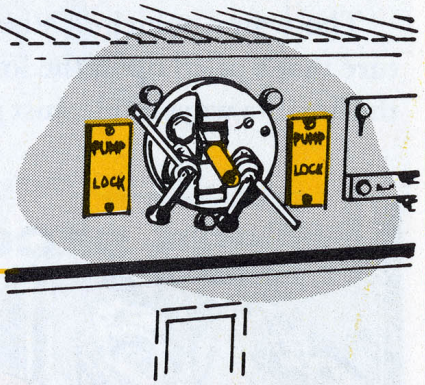

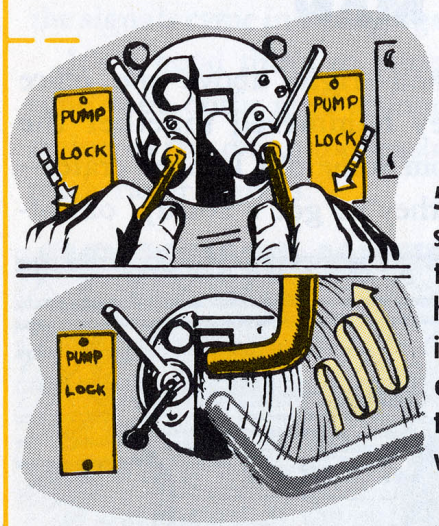

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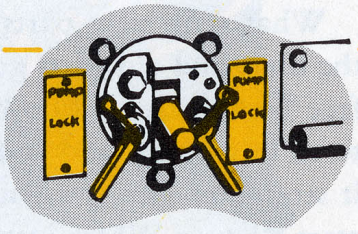

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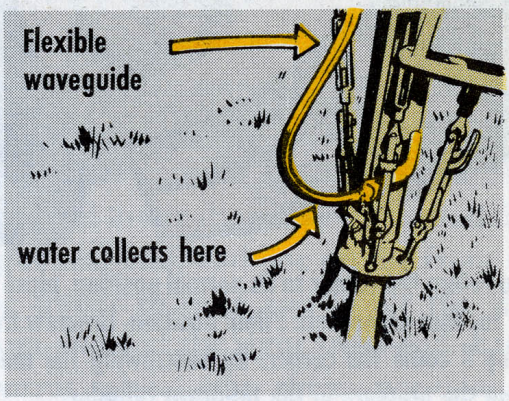
MISSILE BLASTS

RESCUE YOUR SIGNALS

A tablespoon of water... that's all it takes to just about drown out the signals coming from the radar test mast to the RF test set at your Nike site.

The water, which is a heap of moisture that's piled up in the lowest part of the flexible waveguide, just plain blocks the path of the RF energy that's trying to get through the waveguide.

So . . . the next time you can't track down the reason for the weak signals, take off the waveguide... straighten out the bend... and aim it toward the ground. The odds're pretty good that water'll flow out.

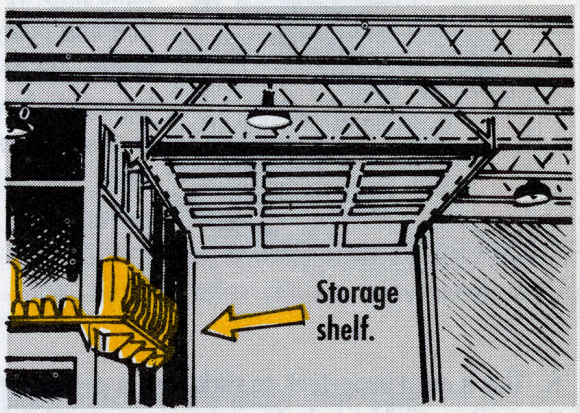


SECOND STORY, MAN

A place for everything and everything in its place may be OK for the boys who have lots of room, but it's pretty hard to keep things ship-shape in the assembly building at your Nike-Ajax site.

What with new parts comin' in all the time, and old parts going out, what free floor space you do have gets cluttered in a hurry, and you no sooner get it straightened up, when you've got to start all over. Which just makes it twice as hard to get your work done and stay neat all at the same time.

One outfit, with its CO's blessing, has gone ahead and made a second floor—a storage shelf—right above the office cage. They hammered together the boards from some old lumber crates—and now they've got a sturdy, out-of-the- way place to store stuff.



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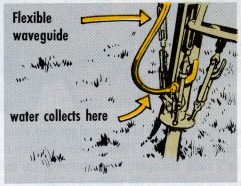

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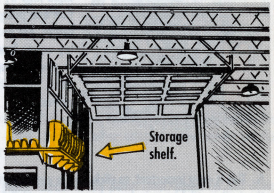

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They kept getting weak signals from their missile and target track radars. They went through every check a couple of times. Still weak signals. It couldn't have been a tougher nut to crack if somebody had bugged the equipment.

Then this one guy, who must be a cousin, twice-removed, to Sherlock Holmes, spotted the villain. It turned out somebody had removed the lenses from the track radars and then put them back wrong. Instead of putting the top of each lens at the top of the stanchion, they were tilted to one side. The lenses were taken out and put in right... and the signals came in strong again.

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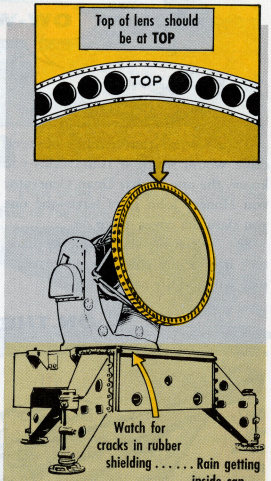
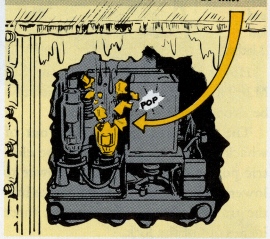


COOKING WITH GAS

Not on the stoves in the mess hall... the gas in the tubes in the high voltage power supplies for your Nike-Ajax target and missile track radars.

It can happen if the rubber shielding across the hinged section of the roadside equipment inclosure cover develops cracks. Rain beats through the crack... past the door... and on to the high voltage power supply chassis in both the MTR and the TTR. And the rain can get to the modulator in the MTR. That kind of deal sets you up for cracked tubes and short circuits.



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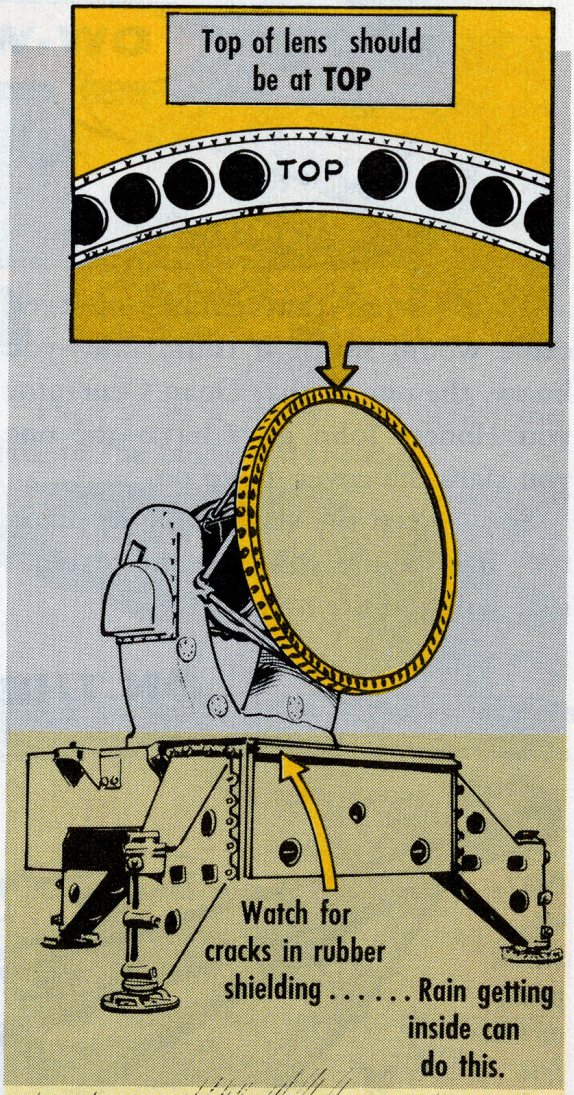

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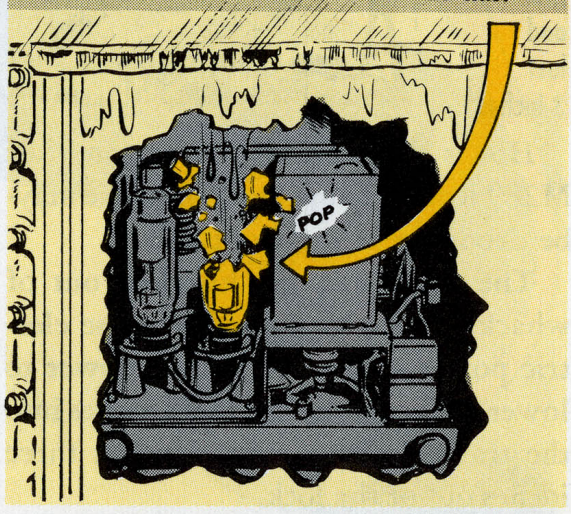

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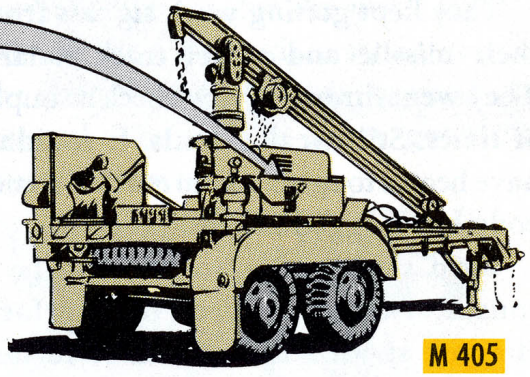
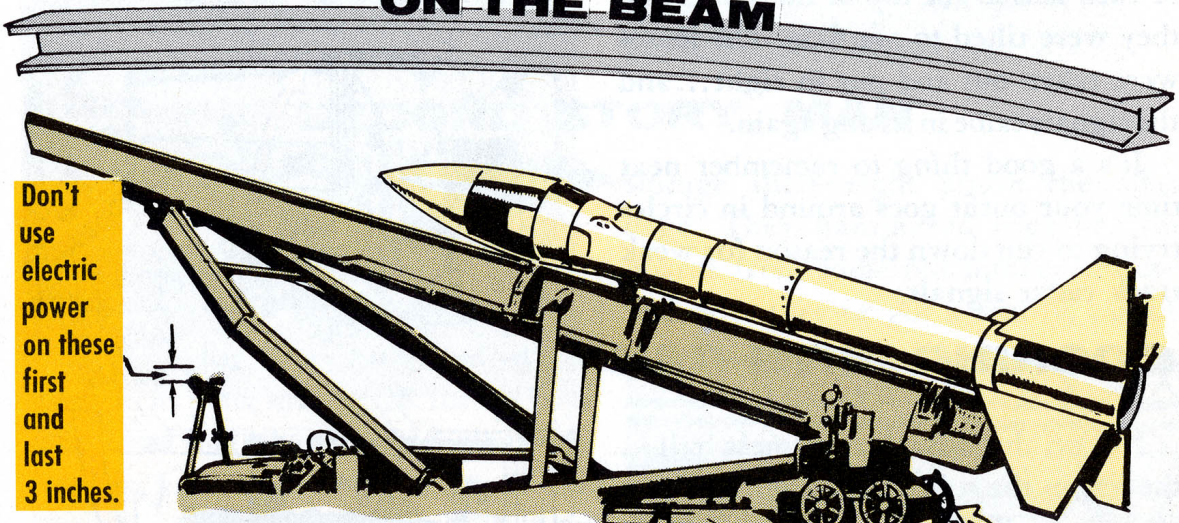
HONEST JOHN NOTES

That's what that rubber covered cable would say if it could talk—you know, the one in that Onan Generator you Honest John guys have—the one you slam the cover down on.

So . . . keep the slack cable in place, tuck it in before you close the cover. It sure will add life to it.



ON THE BEAM



How's the launching beam on your M289 Rocket Launcher look? Like maybe drooping at the front end.

The beam can get knocked out of whack when a guy decides to use electric power instead of muscle power to lower the beam the last three inches into the travel lock or raise the first three inches out of the lock.

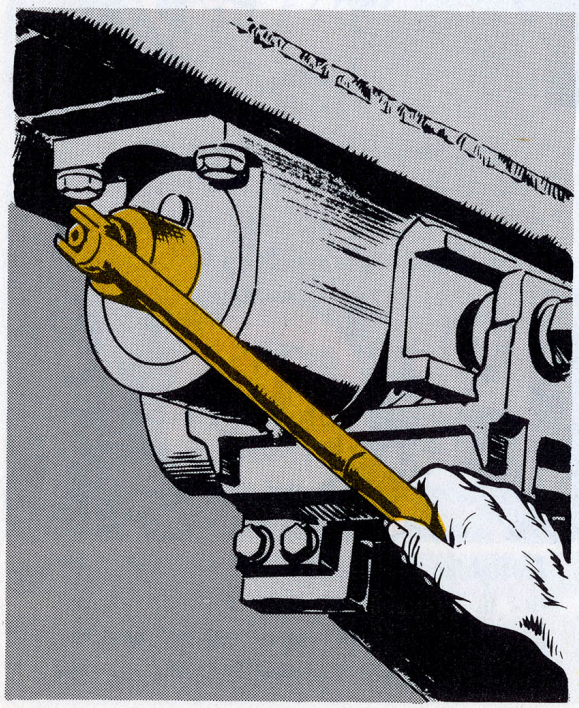
Keep in mind you can give the beam a real jolt if it goes into the lock under power. And it can be twisted if it gets jammed coming out of the lock under power. So use the elevating handwheel those first and last few inches.

YELLOW WILL TELL YOU

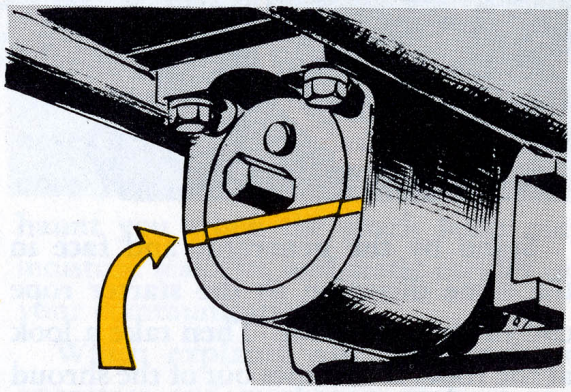
You don't get your mitts on the parts inside the front elevating screw bearing block that's under the launching beam of your M289 Honest John Launcher. It's strictly a job for the people in your support unit and the other upper echelons.

But you can spot a possible foul-up inside the block if you can follow a straight line for a coupla inches.

First . . . tighten the bearing retaining cap. And tight means the cap is flush or almost flush with the face of the block.

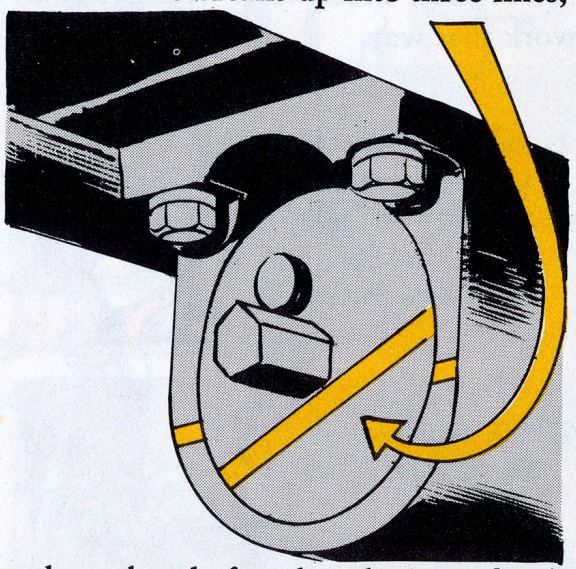


Then paint a yellow line across the face of the block and the cap.



If the parts inside the block are installed right, the cap'll stay put and the yellow line'll be straight.

If the line breaks up into three lines,



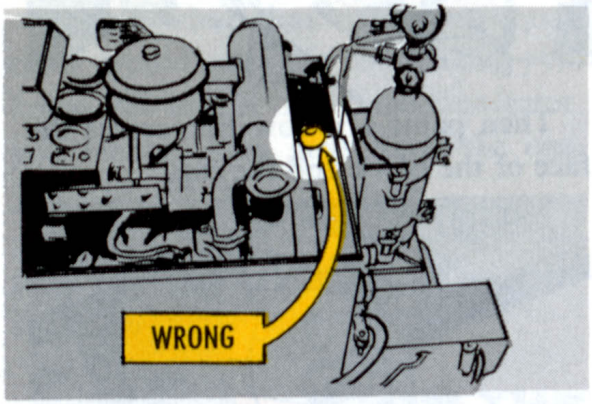
make a break for the phone and ask your support unit to take a look inside the block.

ROPE-A-FRAYED?

Is the starter rope for the Honest John M25 generator set on your M405 handling unit getting frayed?

Have you pulled on the rope to start the generator and wound up with part of it in your hand?

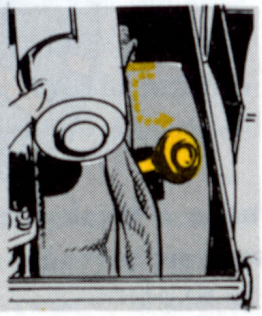
Tell you what to do.

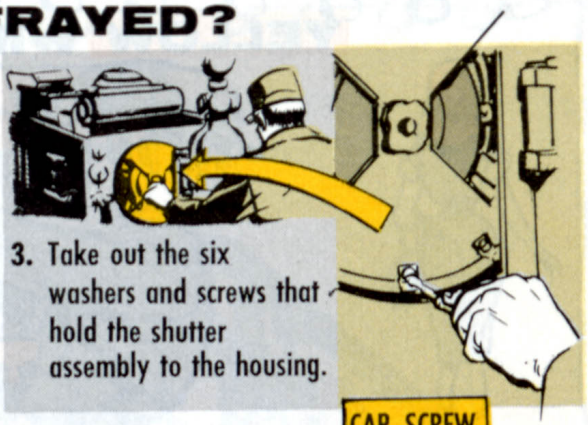


Stand by the generator and face in the same direction as the starter rope end of the generator. Then take a look at the rope. If it comes out of the shroud like above, the rope'll bind against the shroud when you pull on it. The rope wants to come through the other shroud slot . . . and here's how you get it to work that way.

1. Slide the canvas boot toward the generator so you can see openings in the shroud that the rope goes through.

2. Slide the rope out of the slot in the shroud and put it in the other one.

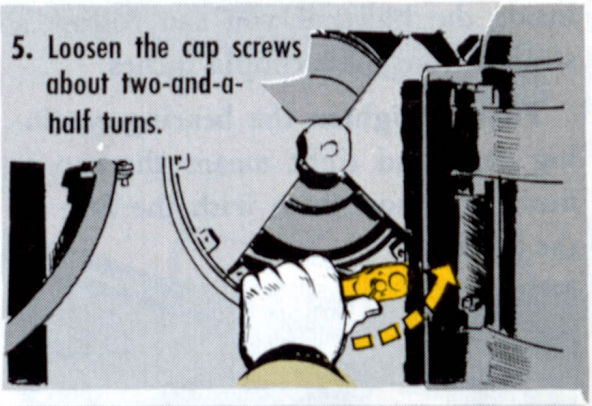




3. Take out the six washers and screws that hold the shutter assembly to the housing.

4. Rotate the shutter assembly so you can get at the four cap screws and washers that fasten the cover to the starter mounting ring, or remove the assembly altogether.

5. Loosen the cap screws about two-and-a-half turns.



6. Turn the cover counterclockwise until the opening in the cover, that the rope goes through, is smack dab under the opening in the shroud– which adds up to 1/4-turn.

7. Tighten the four cap screws.

8. Put back the six screws and washers that hold the shutter assembly to the housing.

CABLE TIPS ARE TENDER

No matter what kind of rig you've got, there are two times in the life of a shielded ignition cable when you're smart to handle it like a fresh-laid egg.

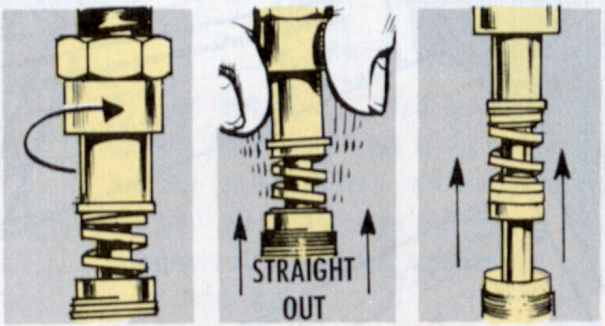
When you connect it—and when you disconnect it.

To shield and seal the connection, those male cable tips have to mate with the receptacles exactly right.

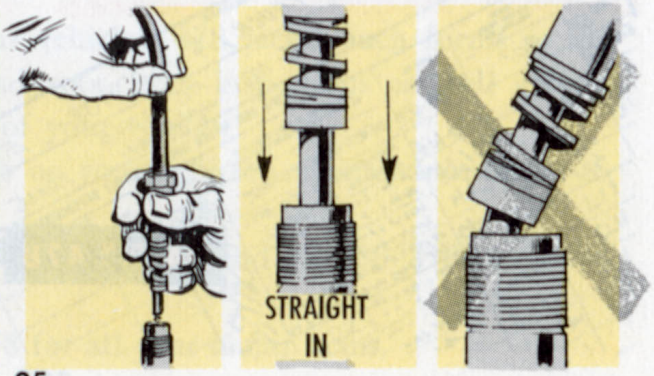
So you never-never-never jam cable tips into receptacles, and you never-never-never yank them out. The seconds you might "save" that way will haunt you when the spark leaks out, moisture leaks in, and static cackles on your communications.

Which explains why savvy vehicle operators and mechanics connect and disconnect their shielded cables by the numbers.

On a disconnect, first you loosen the nut. Then you wobble the tip lightly until you're sure the rubber seal is unstuck before you lift the cable tip out of the plug or distributor receptacle.



And on reconnecting, you first take up enough cable slack so you can feed the tip straight and easy into the receptacle. If you try to shove it in at an angle, you will upset the rubber seal and end up with an unsatisfactory coupling, which will lead to all sorts of complications.



TM 9-2810 gives with a lotta forms that must be kept in your DA Form 478 Organizational equipment file jacket. These forms (or lack of forms) tell what shape your equipment's in.

So, take a look at every jacket you have and run through them to see if your equipment is in top shape. If it is, then these are the up-to-date forms you should find.

Forms that ought to always be present:

1. Technical Unit Acceptance Inspection Form (Vehicle's birth certificate—this can be a 461, 462, or any other local SOP acceptance form).

FOR TRACK COMBAT VEHICLES:

DA FORM 2146

DA FORM 462

DA FORM 461

DA FORM 478

2. Latest Q-Service Form (461 for wheeled vehicles and 462 and 2146 for tracked vehicles. You don't have to keep old Q maintenance forms).

TM 9-2810 gives with a lotta forms that must be kept in your DA Form 478 Organizational equipment file jacket. These forms (or lack of forms) tell what shape your equipment's in.

So, take a look at every jacket you have and run through them to see if your equipment is in top shape. If it is, then these are the up-to-date forms you should find.

Forms that ought to always be present:

1. Technical Unit Acceptance Inspection Form (Vehicle's birth certificate—this can be a 461, 462, or any other local SOP acceptance form).

FOR TRACK COMBAT VEHICLES:

DA FORM 2146

DA FORM 461

DA FORM 462

DA FORM 478

2. Latest Q-Service Form (461 for wheeled vehicles and 462 and 2146 for tracked vehicles. You don't have to keep old Q maintenance forms).

PART-TIME FORMS... FOUND ONLY WHEN USED:

1. DA Form 1546 (5 or 6 black copy) needed on each item shown as requisitioned on the Current Work File—with block 25 showing the support unit voucher number.

2. DA Form 811 (Work Report No. 2 copy)—when equipment goes for higher echelon maintenance.

DA FORM 811

DA FORM 1546

3. Vehicle Classification Inspection Form (DA Form 461-5 for transport vehicles and DA Form 462 for tracks).

DA FORM 461-5

DA FORM 2147

DA FORM 317

3. Current Work File (DA Form 2147)—up to date showing the work that can't be done because of parts due-out or other justifiable causes.
This work file is not to be used as a deferred maintenance form. It's used to schedule work between Q services as reported by the driver on trip ticket (DD 110).

4. Local lube form . . . used according to local SOP to keep track of the semi-annual (6,000-mile) and annual (12,000-mile) lubes spelled out on equipment LO's (used until a permanent form comes out).

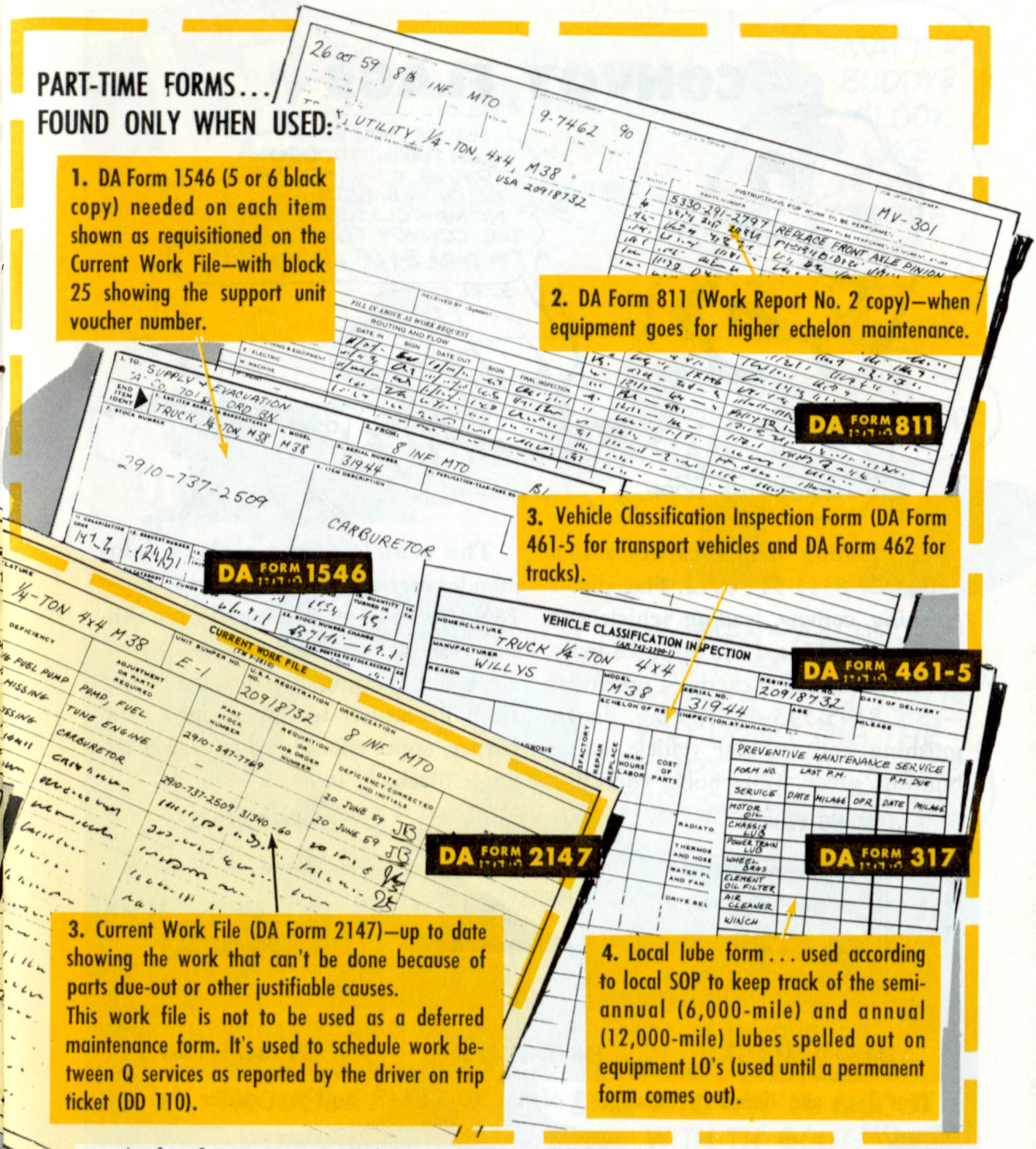
And, of course, you'll have in your vehicle's 478 jacket such forms as the records of command maintenance and spot-check inspections as well as any other records about the maintenance of your vehicle.

In other words, **all current records** on your vehicle's maintenance ought to be in its 478.

You'll want to read the scoop in AR 750-5 (ch 3) and AR 750-2300-1 on the equipment file jacket.

Naturally, you keep a DA Form 478 for all your major items.

PART-TIME FORMS... FOUND ONLY WHEN USED:



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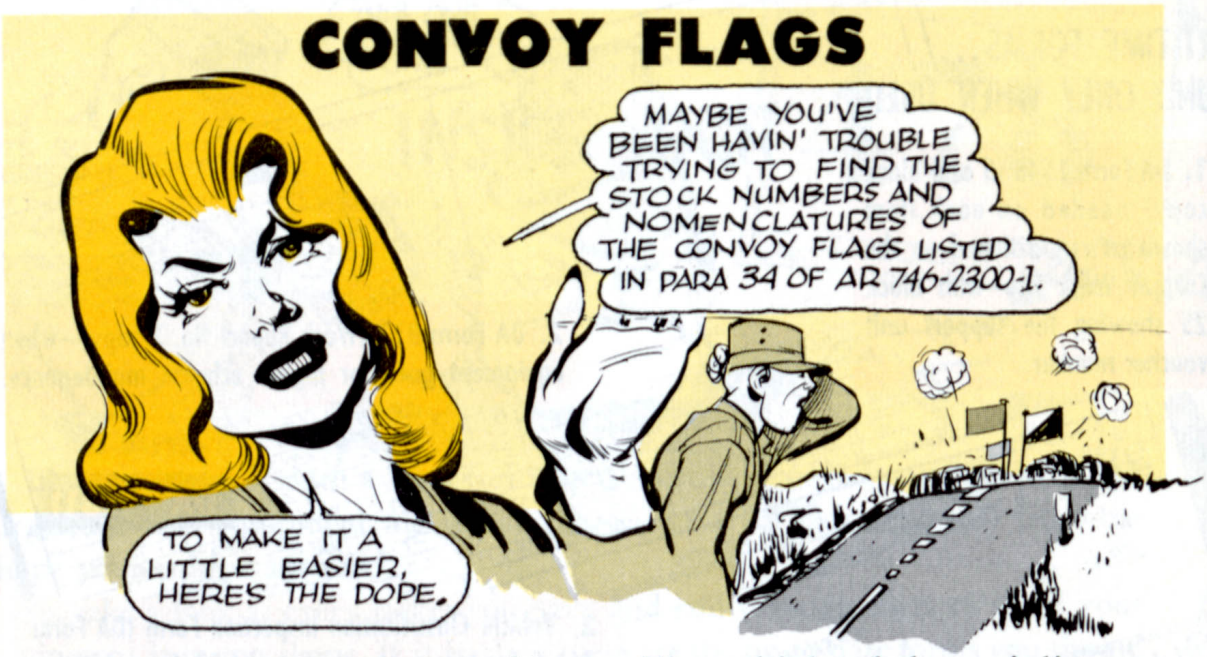
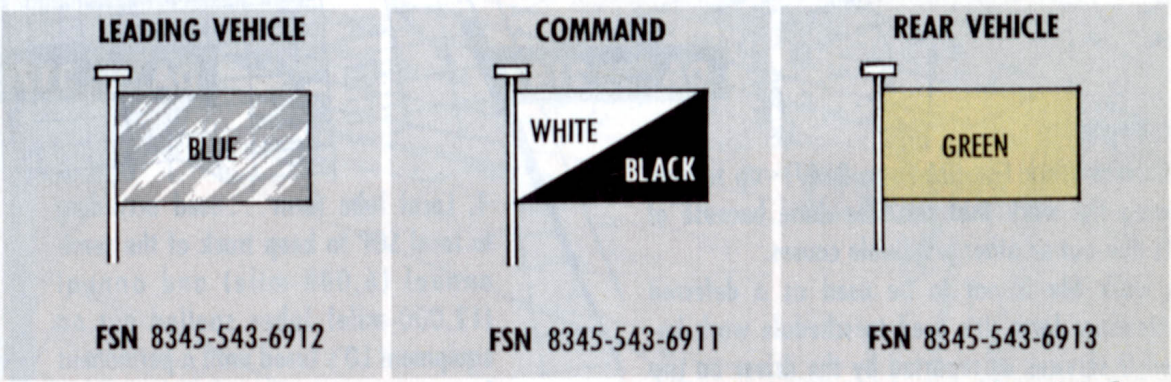
CONVOY FLAGS



The leading vehicle carries a blue flag—FSN 8345-543-6912, Flag distinguishing, convoy, leading vehicle, cotton bunting, blue, 12-in hoist, 18-in fly.

The rear vehicle carries a green flag—FSN 8345-543-6913, Flag, distinguishing, convoy, rear vehicle, cotton bunting, green, 12-in hoist, 18-in fly.

The vehicle of the serial's commander carries a white and black flag—FSN 8345-543-6911, Flag, distinguishing, convoy, commander of series vehicle, cotton bunting, flag bisected by line from lower left to upper right hand corner, upper triangle white, lower triangle black, 12-in hoist, 18-in fly.

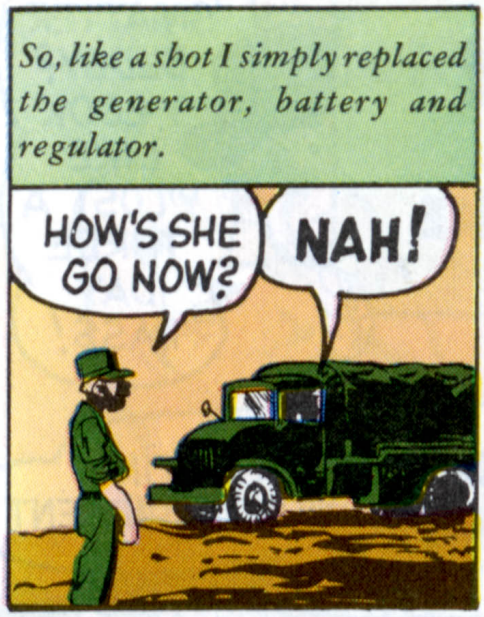


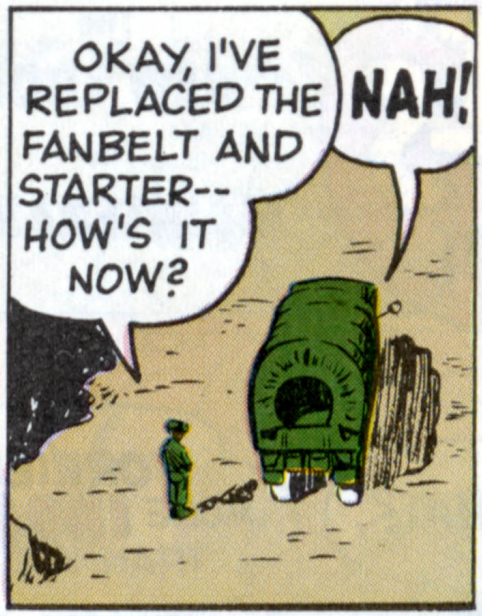
The flags are listed in Change 5 of SM 10-5-8345, and you order the flags from QM.

When you mount them on your vehicle they'll normally go on the left side of your vehicle except in places where vehicles are driven on the left side of the road, then you'll have to mount them on the right side.

You can mount the flags at the front or at the rear of the vehicle but you'll have to place them so they won't interfere with the vision of the operator or crew. And they're not to cover up or be in the way of the lights or any other part of the vehicle that might be a safety hazard.

JOE'S DOPE
The
NEW LOOK
in
MAINTENANCE
'SMATTER, BUDDY? Y'LOOK LIKE Y'LOST A THREE DAY PASS!
...Y'R WHAT?
WORRIED... ABOUT GETTIN' MORE IROAN REPAIRED EQUIPMENT THAN YOU USTA??
WHY, MAN—YOU NEVER HAD IT SO GOOD... TROUBLE WITH YOU IS YOU DON'T DIG THE SCRIPT... HERE, MAKE THIS SCENE WITH ME.
LIKE, I am a mechanic with the umpteenth Battle Group in the field last summer, when I see this 2½ come crawlin' back, draggin' its gaskets.
TH' DISPATCHER SAYS YO' GOT TROUBLE!
YEAH! THIS JOB'S GOT NO POWER... SHOT LIKE A 60-Y'R-OL GIGOLO WITH TH' GOUT!


So, like a shot I simply replaced the generator, battery and regulator.
HOW'S SHE GO NOW?
NAH!

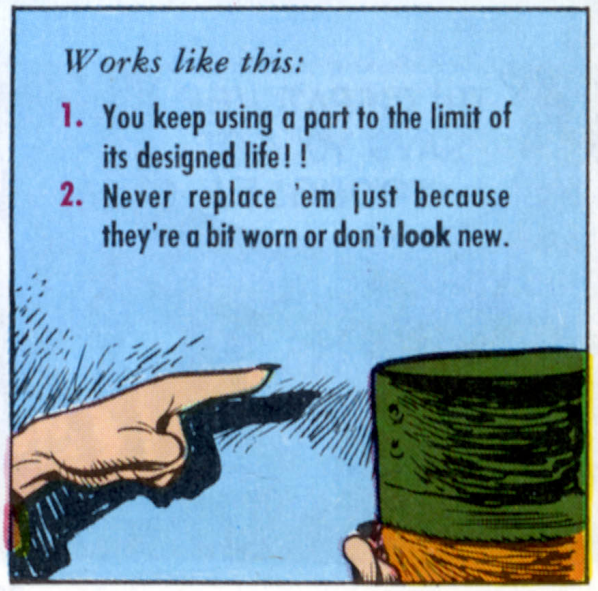

OKAY, I'VE REPLACED THE FANBELT AND STARTER-- HOW'S IT NOW?
NAH!

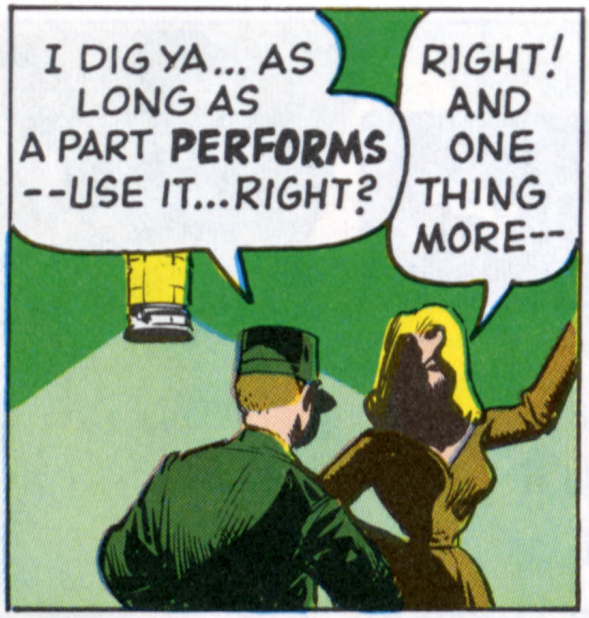
HMMM! I GIVE UP. HELLO... SUPPORT.

LISSEN, I GOT A BEAT 2½ NEEDS A COMPLETE OVERHAUL AND...
HOLD IT!

HAVEN'T YOU HEARD ABOUT IROAN?
SURE, BUT THAT'S FOR DEPOTS!
CLICK

FOR DEPOTS AND ALL ECHELONS OF MAINTENANCE ...CHANGE 5 TO AR 750-5 SAYS IT LOUD AND CLEAR!

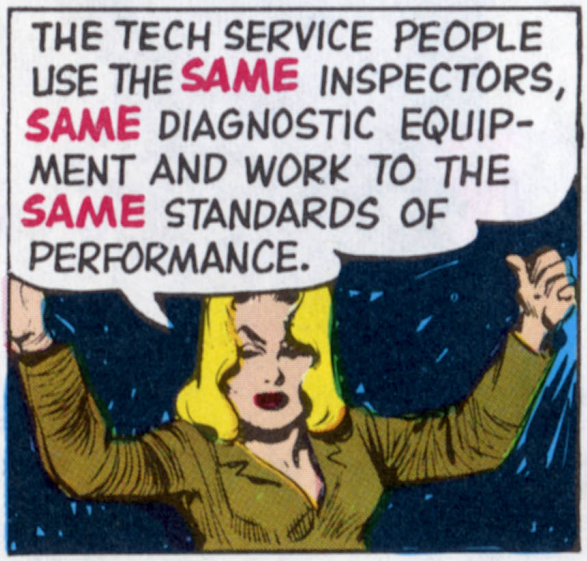

Works like this:
1. You keep using a part to the limit of its designed life!!
2. Never replace 'em just because they're a bit worn or don't look new.


I DIG YA... AS LONG AS A PART PERFORMS --USE IT...RIGHT?
RIGHT! AND ONE THING MORE--

YOU GUYS (AS WELL AS THOSE IN FIELD AND DEPOT) SHOULD USE TEST EQUIPMENT TO SEE WHICH PART'S GOOD AND WHICH IS BAD...BEFORE YOU START REPLACING!

LIKE, IF WE DO IT THAT WAY WE CUT OUT COSTLY GUESS WORK!
AND YOU'RE SURE OF KEEPING STUFF UP TO ARMY SERVICEABILITY STANDARDS.

BUT IS IROAN JUST AS GOOD AS DEPOT REBUILD?
OF COURSE! BECAUSE IN EACH CASE YOU GET AN EXPERT JOB.


THE TECH SERVICE PEOPLE USE THE SAME INSPECTORS, SAME DIAGNOSTIC EQUIPMENT AND WORK TO THE SAME STANDARDS OF PERFORMANCE.

I DIG...THEN THE ITEM THAT'S BEEN IROANED IS AS GOOD AS THE ONE THAT'S BEEN STRIPPED DOWN AND REBUILT...
RIGHT AND THIS PIN-UP SUMS IT UP!!

JOE'S Dope Sheet

The AR sums it up, you'll recall—
*IROAN is the best deal of all—
Doesn't change the degree
of repair quality
and it saves on high-cost
OVERHAUL!

*INSPECT REPAIR O

WE HAVE THE WORLD'S BEST E

JOE'S Dope Sheet
The AR sums it up, you'll recall—
*IROAN is the best deal of all—
Doesn't change the degree
of repair quality
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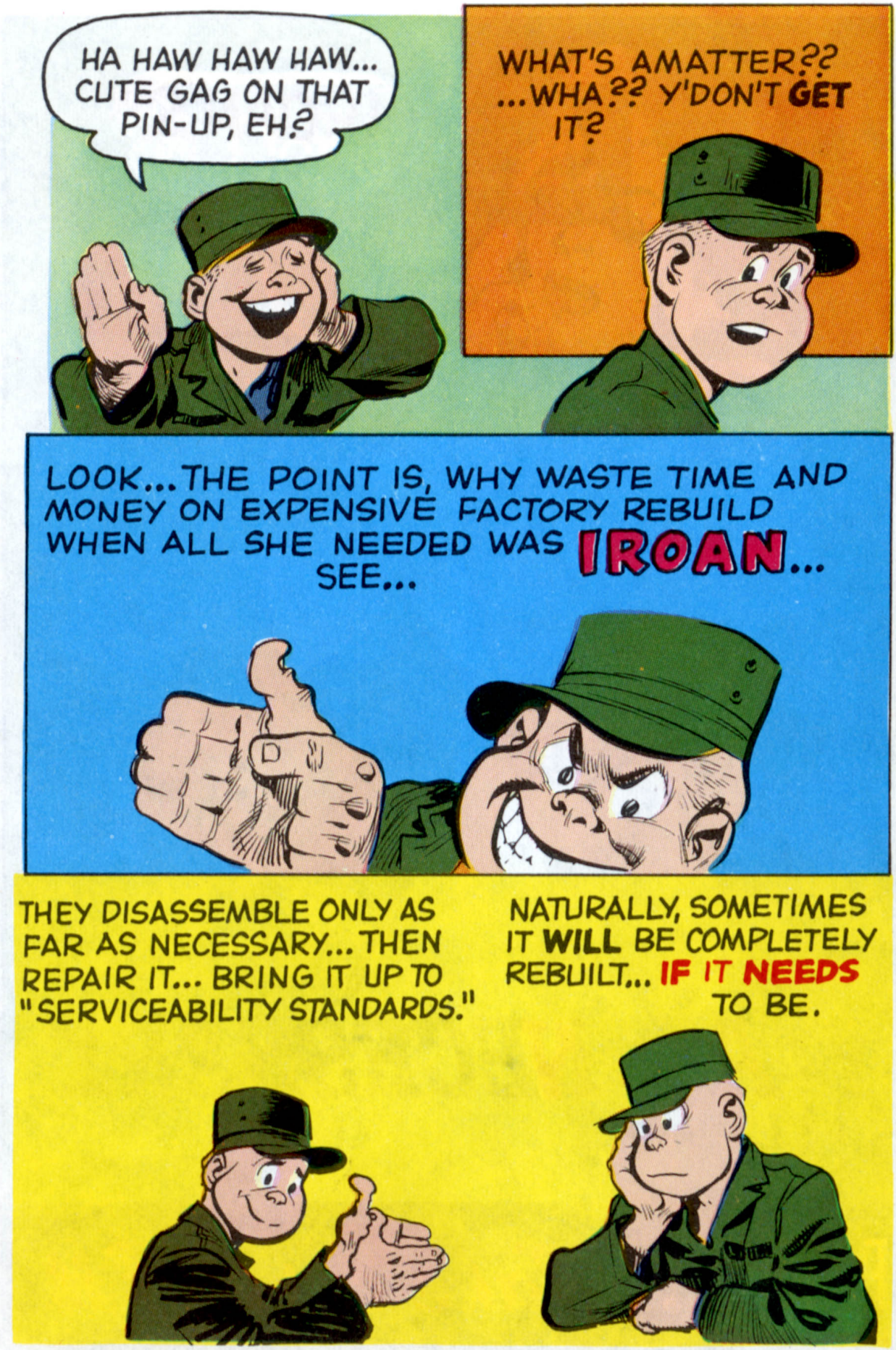
OVERHAUL!
IROAN'S
GOT IT.
*INSPECT REPAIR ONLY AS NECESSARY
WE HAVE THE WORLD'S BEST EQUIPMENT ... Take care of it

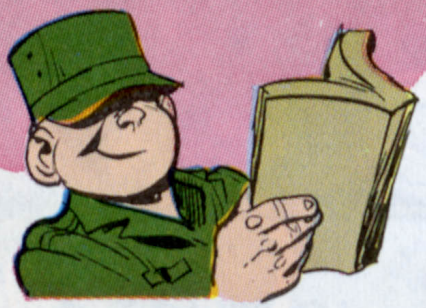
IROAN'S
GOT IT.
NLY AS NECESSARY
QUIPMENT . . . Take care of it


HA HAW HAW HAW... CUTE GAG ON THAT PIN-UP, EH?
WHAT'S AMATTER?? ...WHA?? Y'DON'T GET IT?
LOOK...THE POINT IS, WHY WASTE TIME AND MONEY ON EXPENSIVE FACTORY REBUILD WHEN ALL SHE NEEDED WAS IROAN... SEE...
THEY DISASSEMBLE ONLY AS FAR AS NECESSARY... THEN REPAIR IT... BRING IT UP TO "SERVICEABILITY STANDARDS."
NATURALLY, SOMETIMES IT WILL BE COMPLETELY REBUILT... IF IT NEEDS TO BE.

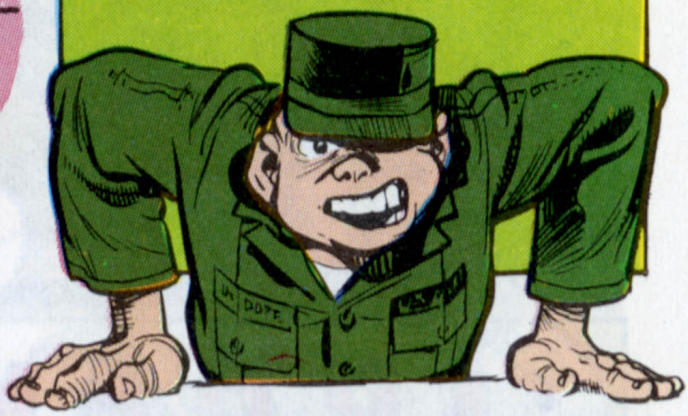
OF COURSE IT'S GOOD ... IT'S A MAINTENANCE TECHNIQUE... HERE'S YOUR AUTHORITY--

AR 750-5 CHANGE 5 (11 APRIL '60)... **IT SAYS**... (AND GET THIS KIDDO...)

"...it does not change or lower the required quality of maintenance or prescribed service-ability standards."

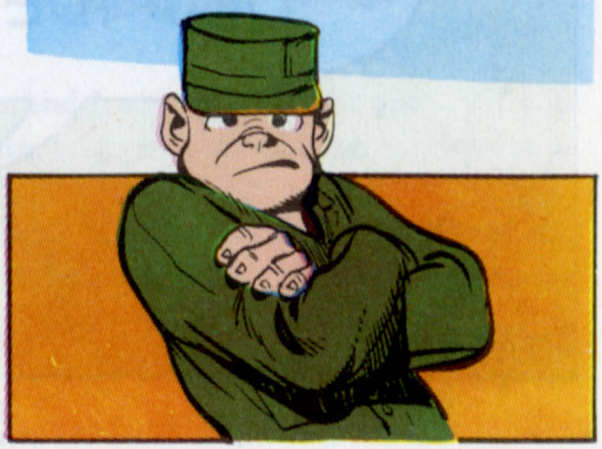


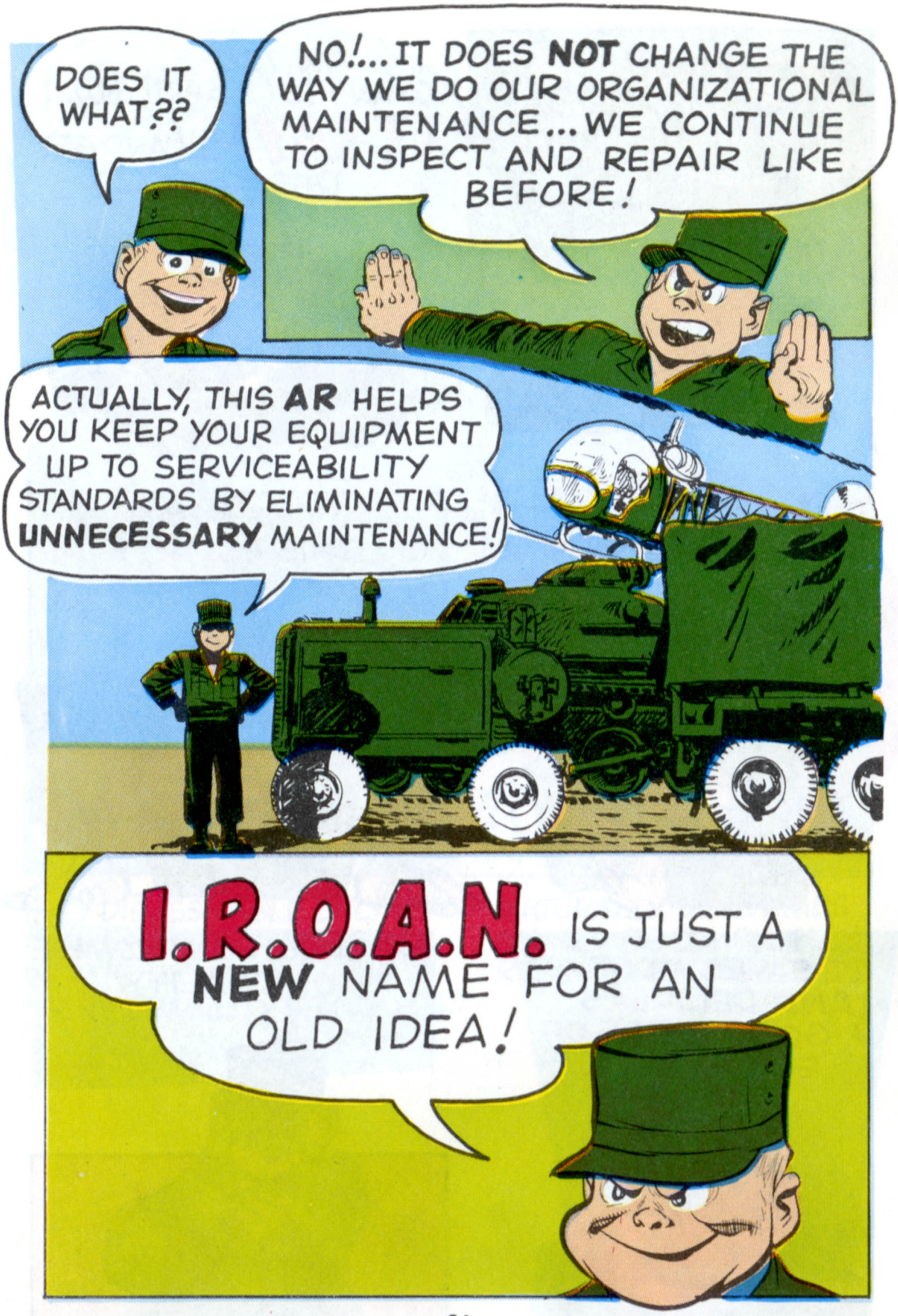
WADDYA MEAN, IS THIS **GOOD**??



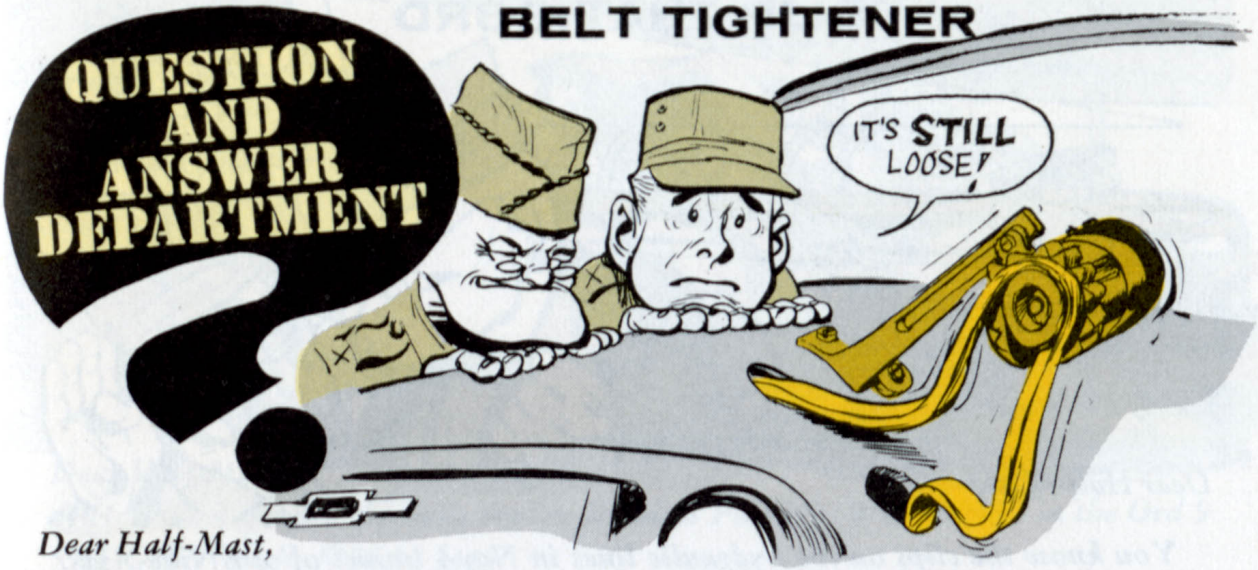
IT SAVES MONEY, **AND** DELIVERS A GOOD PIECE OF EQUIPMENT...

WITH NO COMPROMISE ON QUALITY.




DOES IT WHAT??
NO!... IT DOES **NOT** CHANGE THE WAY WE DO OUR ORGANIZATIONAL MAINTENANCE... WE CONTINUE TO INSPECT AND REPAIR LIKE BEFORE!
ACTUALLY, THIS **AR** HELPS YOU KEEP YOUR EQUIPMENT UP TO SERVICEABILITY STANDARDS BY ELIMINATING **UNNECESSARY** MAINTENANCE!
I.R.O.A.N. IS JUST A **NEW** NAME FOR AN OLD IDEA!

BELT TIGHTENER



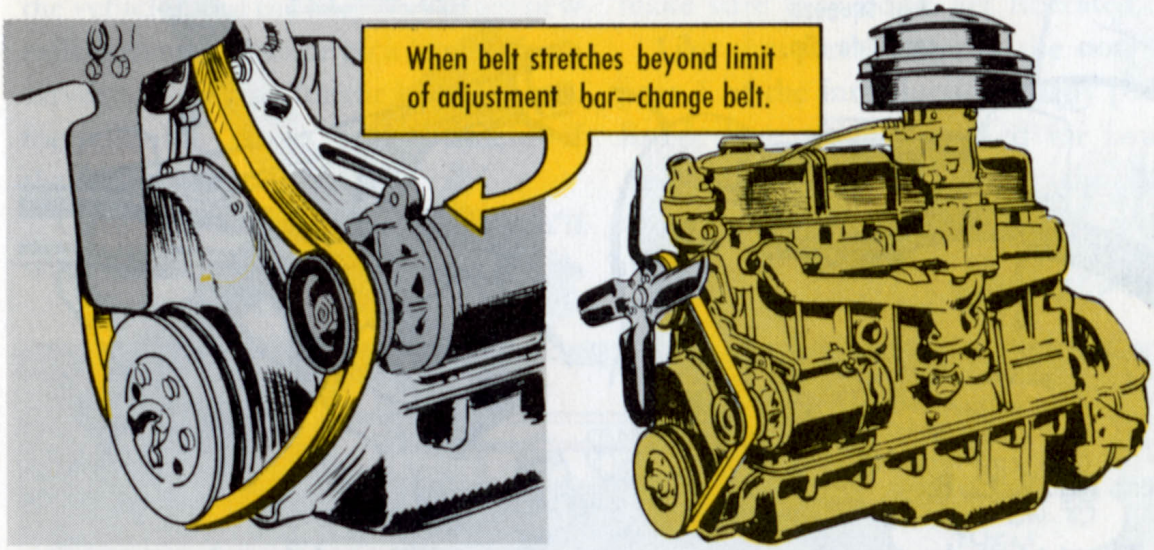
Dear Half-Mast,

The generator drive belt adjustment bar seems to be too short on the Chevrolet 3100-series vehicles.

We got the bar out as far as it will go but still can't tighten up the belts enough.

How about having the bar made longer to get more service out of the belts, which seem to be in good condition except they don't fit tight?

Mr E. W. H.

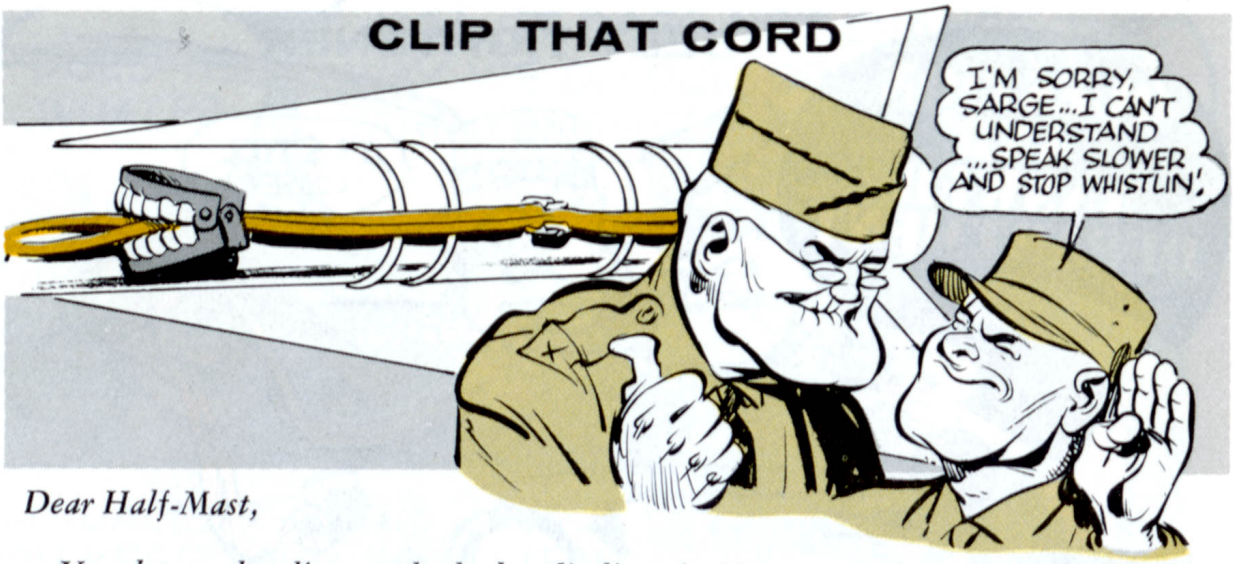


Dear Mr. E. W. H.,

Making the bar longer is one solution and it may be the best one . . . if you were issued a batch of oversize belts. When that's the case you can ask your support unit to make a longer bar.

In most cases, though, when a generator fan belt has stretched beyond the limit provided by the adjustment bar, you can't depend on it, even though it may look like it's in good shape. When this happens it's time for a change.

Half-Mast



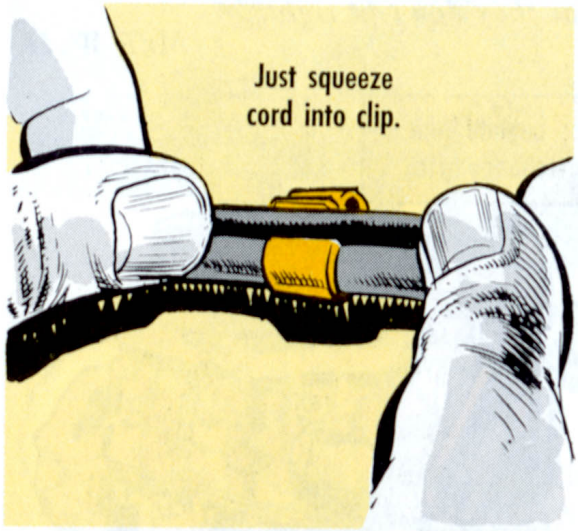
Dear Half-Mast,

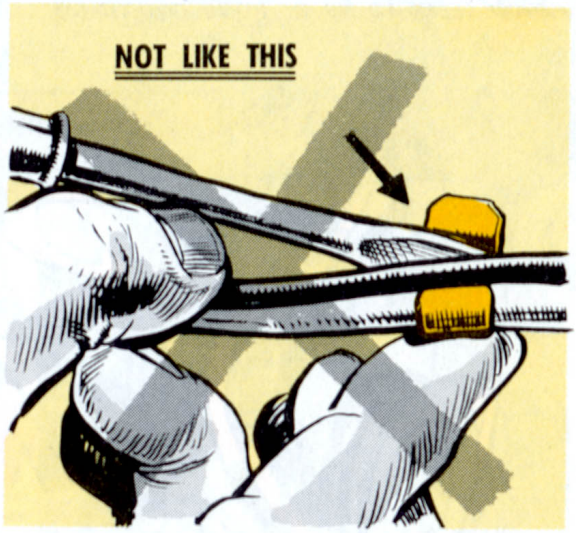
You know the clips on the hydraulic lines in No. 4 tunnel of our Nike-Ajax? The ones used for fastening the detonating cord to the hydraulic line.

Looks to me like the clips are so tight that they're crimping the cord, yet, if we attempt to spread the clips, they just stay spread and don't hold.

What's the chances of getting a better clip for the job?

CWO J.C.B.





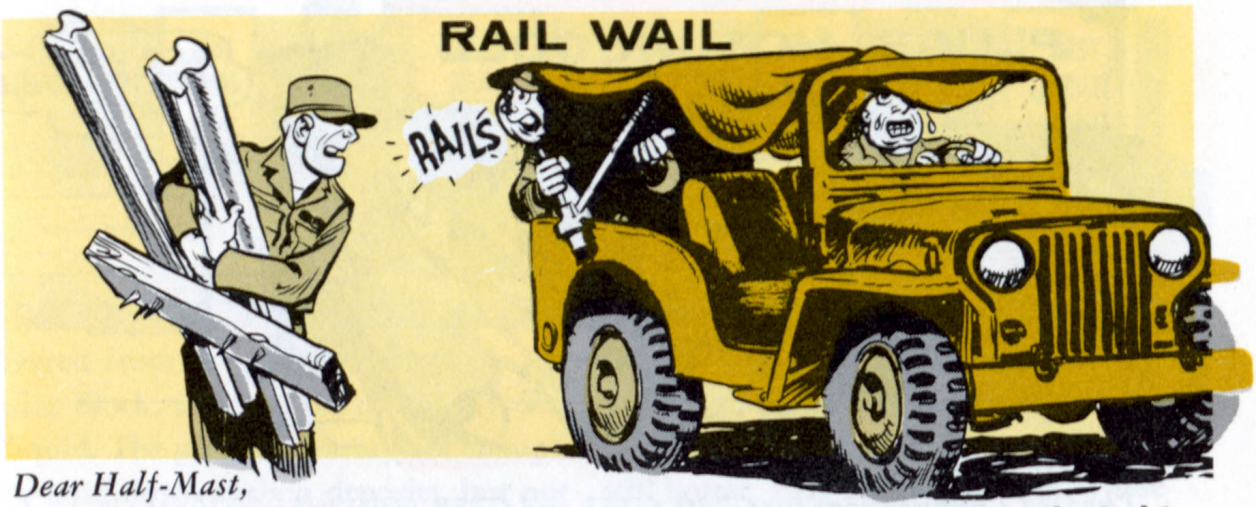
Dear Mr. J. C. B.,

Those clips do give the appearance of being right-tight, but actually that clip has to be one that leaves no doubts about being able to hold the cord in place during thrust when launched and during violent maneuvers.

Fact is, by spreading the clips to get the cord into place, they'll lose their tension and become useless... never do it. The cord'll work into the clip by just taking the cord and squeezing it into place. That way there's no chance of over-spreading the clips.

The tension applied on the plastic coating of the cord won't affect its burning qualities one bit nor will it damage the coat. Those clips'll do the job just as long as they're not pried apart.

Half-Mast



Dear Half-Mast,

How do I get the top rails that're listed as Part No. WO-680437 in the Ord 9 SNL G758 for the M38A1 Jeep?

Can't find 'em in the Ord 7 SNL G758 nor the -20P manual for this vehicle. So . . . do I just let the top sag when I install the winterization kit?

Sgt R. P. K.

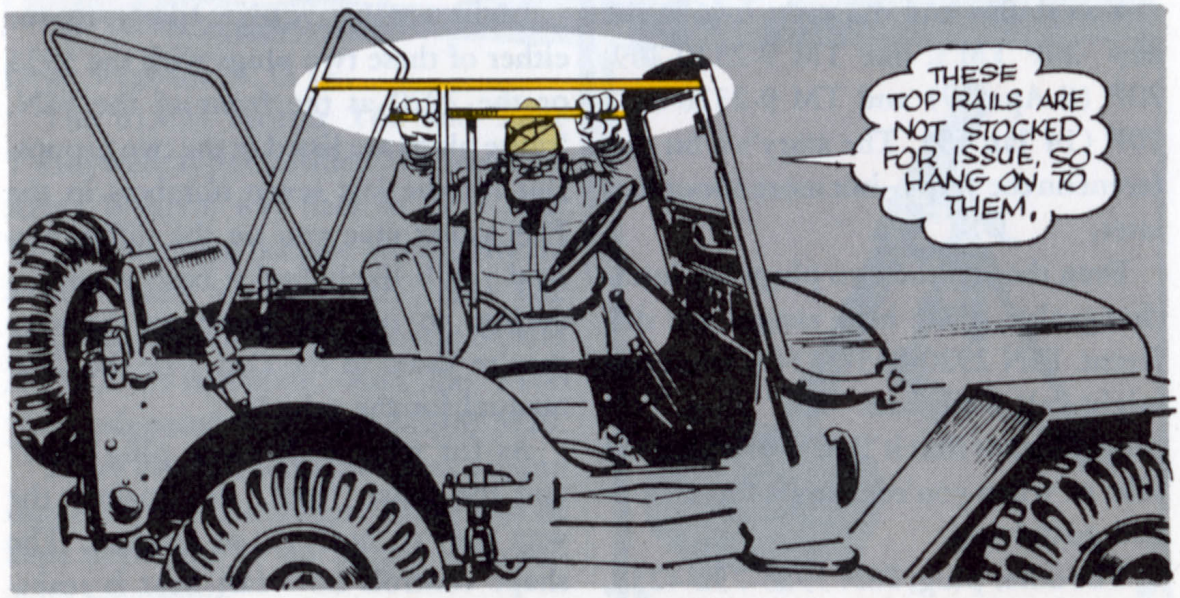
Dear Sgt R. P. K.,

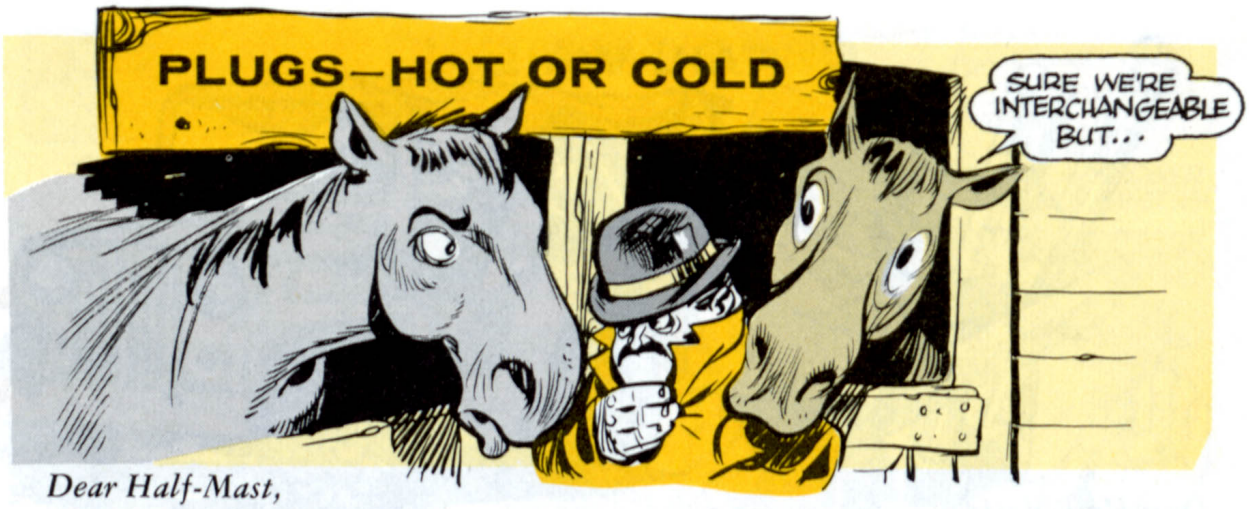
Top rails were meant to last the life o' the vehicle. And the only way to get new rails is to make 'em or pick 'em up from salvage. That goes for the brackets, too, for fastening 'em to the windshield—if they're missing.

Once you've got your rails, you'll want to hang onto them. Even if you hafta hide 'em in your bunk at night to make sure they don't get liberated.

Like that Ord 9 says in the note in para 1 of the introduction, many parts listed there are not stocked for issue. And only those in the Ord 7 or the -20P manual are for organizational maintenance.

Half-Mast





Dear Half-Mast,

The Ord 7 publications for G740, G741 and G758-series vehicles list their spark plugs as FSN 2920-835-7724. For the G742, G744, G792 and G749-series vehicles another plug, FSN 5935-752-4258, is listed, but some SNL's also say the two are interchangeable.

I've been told they have a different heat range—whatever that is. Just what is the difference?

Sgt. I. C. K.

Dear Sgt. I. C. K.,

Those two plugs — FSN 2920-835-7724 and FSN 5935-752-4258—are interchangeable in the G741, G742, G744, G792 and G749-series vehicles, Sarge, just like the SNL's say.

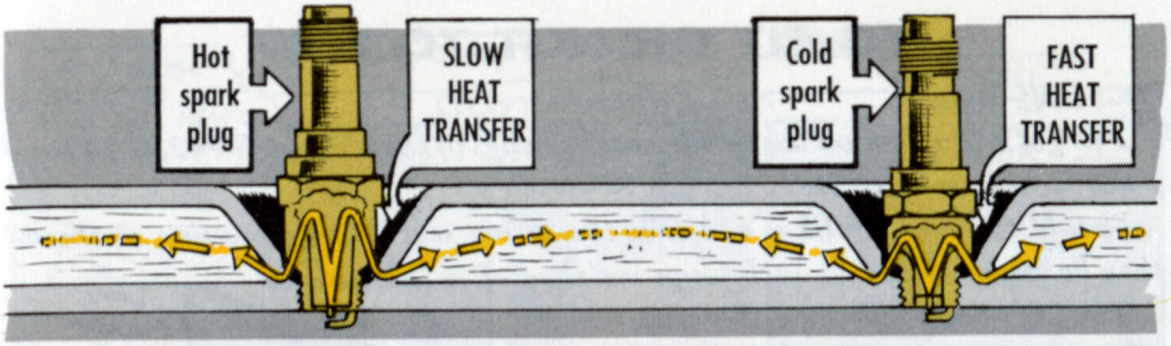
You'll also find the same info in the new -20P TM's, like TM 9-2320-209-20P (8 Apr 59) and TM 9-2320-211-20P (14 Jan 59). The story's a bit different on the Jeeps—but more about that later.

Even though the two plugs are interchangeable, their heat ranges are different. FSN 2920-835-7724 is what you might call a medium "hot" plug. This simply means that it'll perform better at idle, or when you're doing a lot of stop-and-go driving.

The other plug, FSN 5935-752-4258, is a bit on the "cool" side. And this means it's better when you're doing heavy, long-distance hauling. So, it's just a question of picking the plug that fits the type of driving you do most.

Incidentally, you're likely to see either of these two plugs with the 5935 or the 2920 at the front of the FSN, 'cause plugs are listed in the two groups. But it's the last seven numbers in the FSN's that clue you on the difference. And you'll likely find it best, when ordering, to use the numbers the way they're listed in the Ord 7 or the -20P manual for the vehicle.

As for what makes one plug "hot" and the other "cool," it's mainly the way they're built . . . or stacked. The shape controls how fast heat is trans-



ferred from the plug, through the engine block, and into the cooling-system liquid. The plug has to stay hot enough to hold down carbon deposits, but not get so hot it'll cause pre-ignition, or knocking.

If you want to dig deeper into this, take a squint at TM 9-8638 (17 Dec 56).

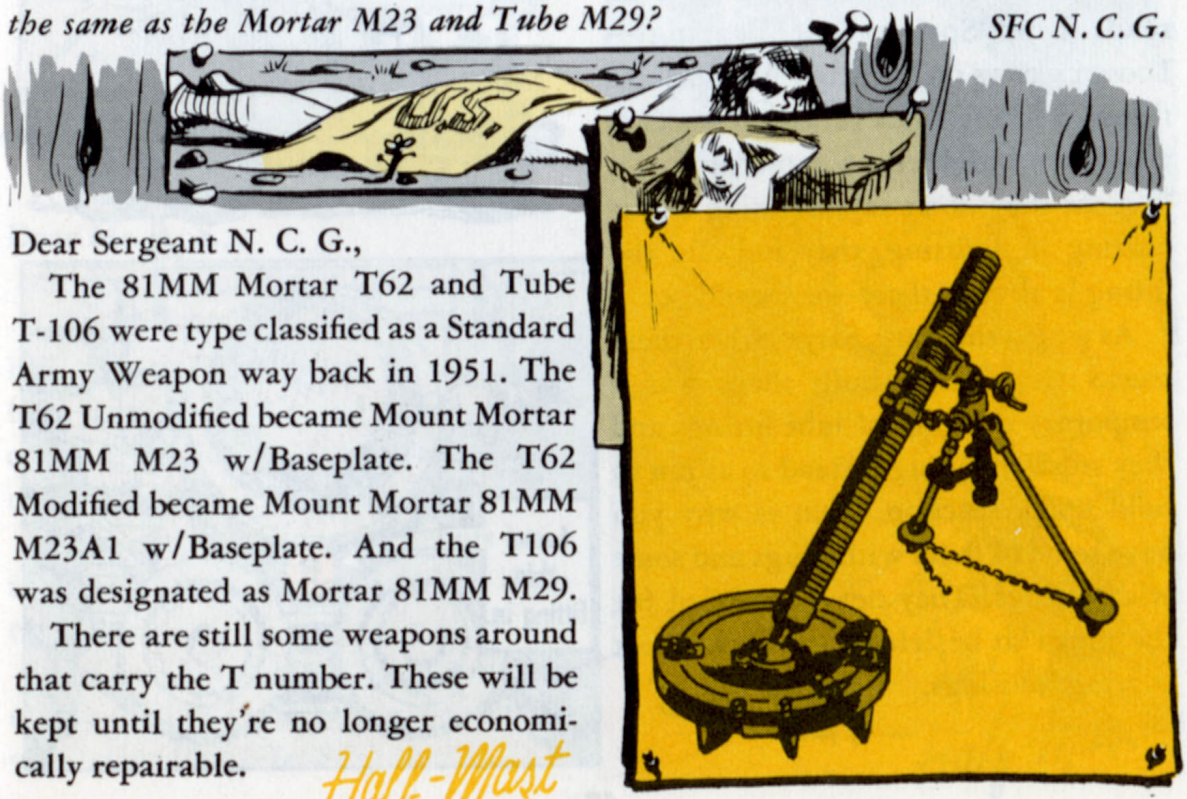
On the G758-series vehicles, you'll find the latest poop on spark plugs in TM 9-2320-208-20P (13 Feb 59). This vehicle and the G740 use either the hot plug, FSN 2920-835-7724, or one that's still hotter, FSN 2920-620-1088. These two are interchangeable in the Jeeps. But the hotter one is better at idle, for stop-and-go driving, or for hauling light loads on short hops.

Whichever plug you use, it's best not to mix plugs with different heat ranges in the same vehicle. *Half-Mast*

MORE ABOUT MORTARS

Dear Half-Mast,

What's the scoop on the 81MM Mortar Mount T62 and Tube T106? Are these the same as the Mortar M23 and Tube M29? *SFC N. C. G.*



Dear Sergeant N. C. G.,

The 81MM Mortar T62 and Tube T-106 were type classified as a Standard Army Weapon way back in 1951. The T62 Unmodified became Mount Mortar 81MM M23 w/Baseplate. The T62 Modified became Mount Mortar 81MM M23A1 w/Baseplate. And the T106 was designated as Mortar 81MM M29.

There are still some weapons around that carry the T number. These will be kept until they're no longer economically repairable. *Half-Mast*

TO FIT OR NOT TO FIT?

Dear Half-Mast,

I've got a problem on the spring seat bearings of the 2½-ton G-742, G-749 and 5-ton G-744 series trucks.

Should the grease fittings be left in the spring seat bearing housing or should they be removed and ⅛-inch plugs installed after lubrication?

The LO's don't tell you either way.

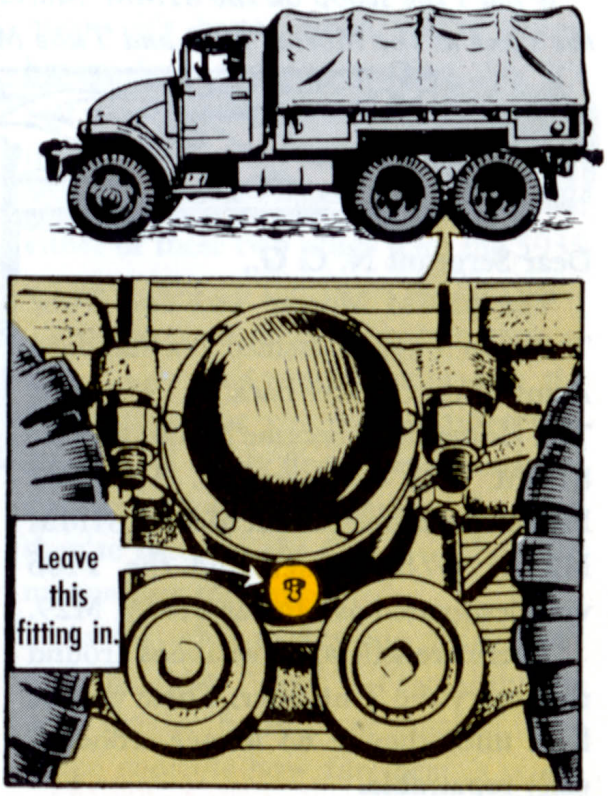
Dear Sergeant J.C.W.,

They should be left in. The LO's do read: Rear Spring Seat Bearings—Loosen screws on bearing cap, lubricate through fitting until lubricant appears around cap, tighten up cap screws.

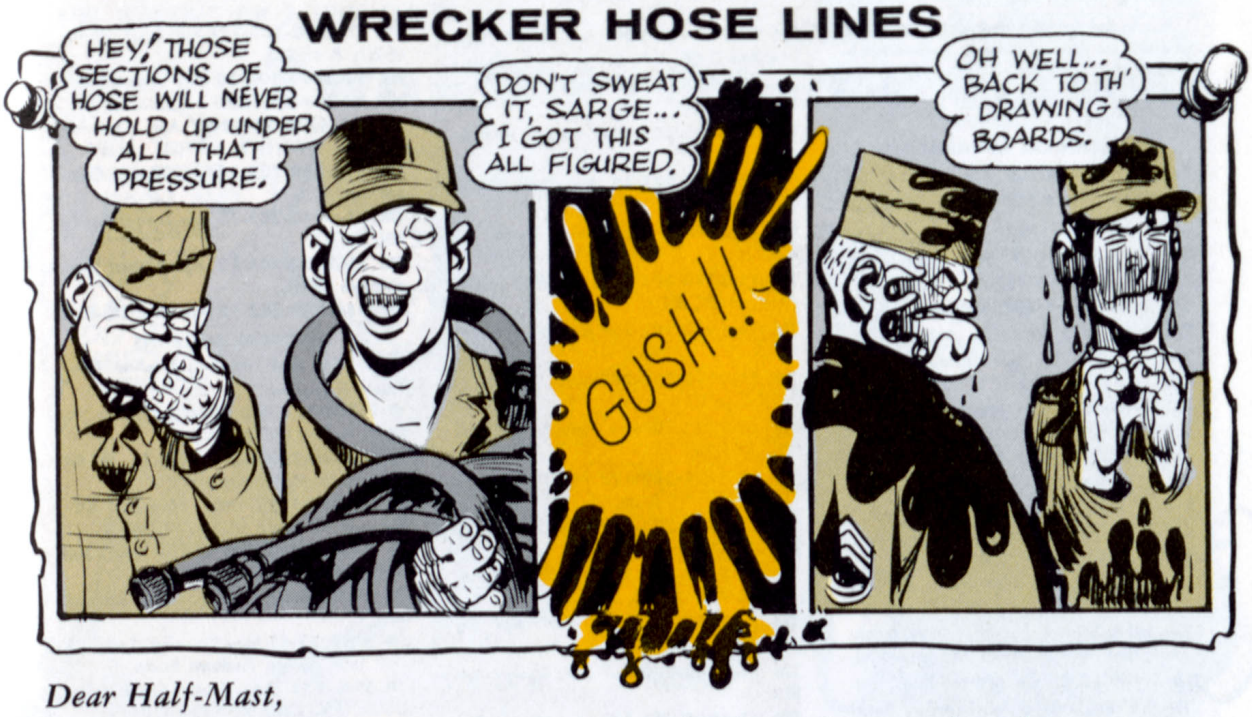
Since they don't say anything about putting in a fitting, they indicate the fitting is already there—or should be.

As we get the story, Sarge, when these trucks were being built there was a temporary shortage of lube fittings and they stuck in a plug instead so as not to hold up production. That is why you have some of them with plugs and some with fittings. They never intended for the plugs to be left in the spring seat bearing housings.

Half-Mast



WRECKER HOSE LINES

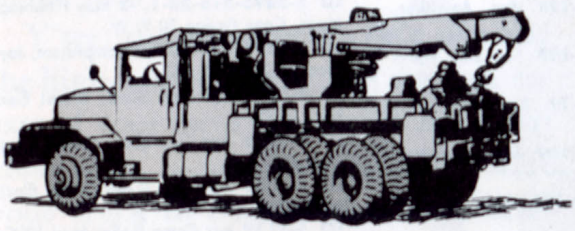


Dear Half-Mast,

What's wrong with making the hydraulic hoses for wreckers from component parts? Hydraulic lines for the steering gear could be assembled from the hose and two adapters. And all three of these parts have FSN's so they can be ordered from supply.

Also couldn't we do the same thing with the hydraulic lines for the wrecker booms?

Mr. A. S.



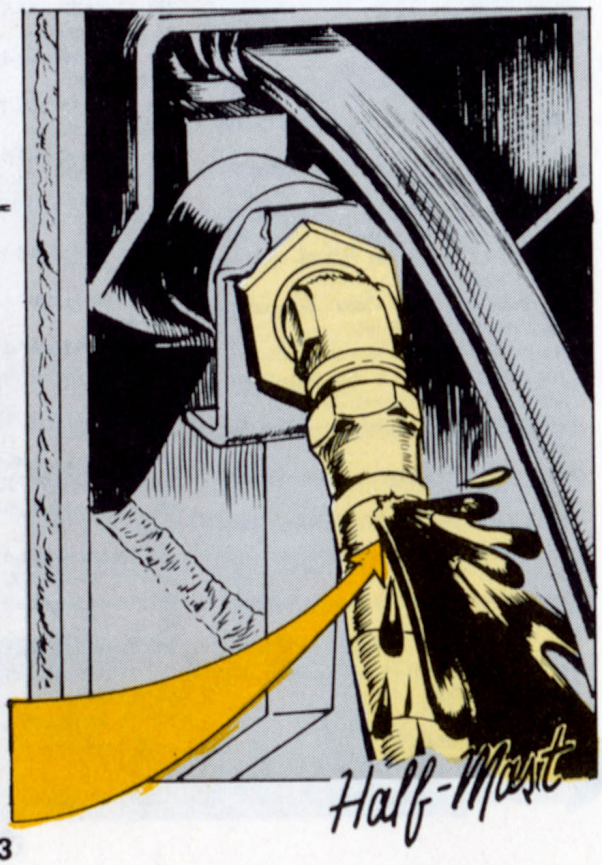
Dear Mr. A. S.,

Sorry, sir, but 'tain't safe.

The idea looks real good on paper. But, due to the high oil pressure, the lines have to be crimped tighter to the couplings than you can get them with ordinary tools.

Neither the field nor the depots have the special tools needed to crimp them on right.

Try doing it without these tools and sooner or later one of your junctions will let go like a Texas gusher.



A selected list of recent publications of interest to Organizational Maintenance Personnel.

TECHNICAL MANUALS

TM 1-1H-13D-4-20P Apr.

TM 1-1H-19A-4-20P Apr.

TM 1-1H-13E-1 Mar.

TM 1-1H-13H-1019 May Appli Tape to Main Rotor Blades.

TM 1-1H-23A-4-20P Apr.

TM 1-1H-34-5 May.

TM 1-1L-20A-17 Mar Storage of Aircraft.

TM 1-1H-13-1002 May Main Rotor Gimbal Ring.

TM 1-1U-1A-4-20P Mar.

TM 1-9V2-2-6-1 Apr Oper Serv, Overh Inst w/Catalog: Engine Driven Vacuum Pumps (Pesco).

TM 1-13A1-1-1 Apr.

TM 1-14S3-3-11 Apr Opera & Serv Instr. Life Rafts Type A-3B & E-2B.

TM 1-14S3-1-34 Apr Illus Parts Breakdown, Life Raft Inflation Equip (Kidde).

TM 5-460 Apr Carpentry & Building Const.

TM-5-2330-200-15 May Trailer, Basic-Utility 2½ Ton.

TM 5-2330-200-25P May Trailer, Util 2½-T.

TM 5-2330-201-20P Apr Trailer, Tank: 6 T; VIC Mod 72.

TM 5-2330-202-20P May Trailer, Bolster: 2½-T.

TM 5-2410-207-12P May Tractor, Tracked, Low Speed: Diesel, Medium.

TM 5-2510-201-25P May Body, Cargo, Pipeline Const.

TM 5-3805-210-10 May Grader, Huber-Warco Mod 4D.

TM 5-3810-205-12P Apr Crane-Shovel.

TM 5-3810-211-12P Apr Crane-Shovel.

TM 5-3810-213-12P May Crane-Shovel, Crawler Gaso Dr ¾ Cu Yd.

TM 5-3895-229-12P Apr Kettle, Heating.

TM 5-4210-203-10-20P May Air Cond & Heater, 60,000 BTU (Ellis & Watts).

TM 5-4120-209-12 May Air Cond: Air Cooled 10.7 HP, AC 208 V, 3 Ph, 400 Cy; 60,000 BTU.

TM 5-4310-222-10 May Compressor Joy Mod RP125 GC 40 MS-3.

TM 5-4940-207-12P May Steam Cleaner.

TM 5-5420-201-12P Apr Drive Unit, Aerial Tramway-Cableway; Gas.

TM 5-6115-200-20-20P May Gen Set 3KW.

TM 5-6115-285-20P Apr Gen Set 0.5 KW.

TM-5-6675-200-15-15P Apr Theodolite.

TM 9-1220-206-20P May Gun Dir Comp M15 & M15C.

TM 9-1440-500-20 Apr Sch for Launcher & Junction Box (Hawk).

TM 9-1450-500-10 Apr Loader (Hawk).

TM 9-2320-213-20P Apr Carrier, Light Weapons Infantry, M274.

TM-9-2330-222-15 Apr Semi-Trailer, Van: Ref M349A1.

TM 9-3950-200-20P Apr 2-Ton Cap Low Bed Por Fl Crane.

TM-10-3930-212-20 Apr Fork Lift Rough Terrain.

TM 10-8415-202-25P Apr Helmet, APH5.

TM 11-5820-277-12 Apr Oscil, Radio Freq 0-330-A/FR.

TM 11-5820-372-20P May Radio Set SCR-616.

TM 11-1520-201-10, -20P May Install Items, H-19C & D.

TM 11-1510-202-20P May Install Items L-19A.

TM 11-1520-204-20P Apr Elec Equip H-13H.

TM 11-2332-20 Apr Proj PH-222-C & Proj AP-9(1).

TM 11-3424-200-12P Apr TL-615/U & TL-615A/U.

TM 11-3895-205-20P Apr Reel Units RL-26A, -26B & -26C.

TM 11-3895-206-20P Apr Reeling Machine & Reel Unit RL-26E.

TM 11-1520-202-10P, -20P Apr Sig Elec Eq in H-34, H1ctr.

TM 11-4140-200-10P May Blower HD-223/G.

TM 11-5805-229-20P May Sp Tele Rep TP-14.

TM 11-5805-298-12P Apr Gen TA-248/TT & TA-248A/TT.

TM 11-5815-260-12P Apr Frequency Shirt Con CY-172A/U.

TM 11-5820-251-20P May Masts.

TM 11-5820-257-12P Apr Ant Tng BC-939-A, -939-B Radio Freq TN-339/GR.

TM 11-5820-364-12P Apr Radio Set AN/SRC-6 & AN/SRC-6A.

TM 11-5820-374-12P Apr Amplifier, RF AM-495/GR.

TM 11-5820-390-12P Apr Elec Equip CY-1150/U.

TM 11-5826-210-12 Apr Maint Kit, MK-252/ARN.

TM 11-5840-241-10P May Amplifier-Filter AM-1570/TPS-ID.

TM 11-5841-210-10P May TN-179/APR-13.

TM 11-5841-213-10P May Tuner TN-181/APR-13.

TM 11-5841-214-10P May Tuner, TN-200/Apr-13.

TM 11-5895-267-10P May.

TM 11-5930-201-15P Apr Switch Box SA-331/U.

TM 11-5965-218-15P May, Microphone T-50.

TM 11-5965-233-12P Apr Headset-Microphones H-91/U & H-91A/U.

TM 11-5985-205-12P Apr Dummy Loads.

TM 11-5985-224-12P Apr Alloc Chart Antenna AS-553/GR.

TM 11-6625-252-12P Apr 60 Wavemeter FR-91A/U.

TM 11-6625-282-12P Apr Wattmeter.

TM 11-6660-200-10, C4 May AN/GMQ-11.

TM 11-6660-203-20 Apr Wind Measuring Sets.

TM 11-6760-205-12P Apr Lens, Camera, LE-2(1) & LE-2(2).

TM 11-6740-208-20 May Inspect Mach Mot Pic Film FM-106A1.

TM 11-6740-226-20P Apr Cleaning Machine, FM-1(1) & FM-1(2).

TM 11-6780-202-10P, -20P Apr Camera Sets.

TM 11-6940-205-15 Apr Trainer Radar AN/ULT-T2.

TM 55-1930-203-12 Apr Lighter Amphibious (BARC).

TM 55-1940-202-12 Apr Boat 243-B.

TECHNICAL BULLETINS

TB 9-264 May Painting Interior Gas Trucks & Trailers.

TB-9-300-1/1 May Combat Vehicles Ins, Care, & Pres During Storage.

TB 9-1430-259-20/4 Apr Tk St Gr Schema on Mod Equip (N-H).

TB 9-5060-12/1 May Launcher M27 Tiedown Kit (Corp II).

TB AVN 23-40 May Special Tool, Tail Rotor Servo Pistons (H-34).

TB AVN 23-42 May Repair & Overhaul Kits.

TB AVN 23-41 May Cleaning, Repair, & Test Instr, Cargo Tiedown Equip.

TB ENG 122 Apr Crane Attach Ident Guide, FSC Class 3815 Crane.

FORMS

DA Form 8-230 Apr Med Equip Maint Rd.

DA Form 9-155 Apr Record Book Lacrosse.

FIELD MANUALS

FM 20-33 May Ground Flame Warfare.

LUBRICATION ORDERS

LO 5-1142 Apr Roller, Road, Gas, Tandem, Buffalo Springfield Mod KT-16.

LO 5-3895-216-20-1, -2 May Finishing Mach, Conc Paving 20 Ft W.

LO 5-4310-222-20 Apr Compressor, Joy Mod RP125GC 40-MS3.

LO 5-5001 Apr Gen (Cons, Diesel Elec Mod 1617).

LO 5-5028 Apr Gen (Cons Diesel Elec) Mod 4005.

LO 5-5055 Apr Gen (Cons Diesel Elec) Mod 4002.

LO 5-5119 Apr Comp (LeRoi Mod 105C-2-A).

LO 5-5255 Apr Eng (Wiscon Mod MVE4D & MVF4D).

LO 5-5273 Apr Gen (Buda Mod DCS-165-A3X-CF).

LO 5-9465 Apr Air Cond (Ref Eng Corp Mod TA 5226) Air Cond Unit, Gaso Driven, 26,500 BTU.

SUPPLY MANUALS

SIG 7 & 8 C-2463/FSG-1 May.

SIG 7 & 8 C-2469/FSG-1 May.

SIG 7 & 8 MD-144/TPS-ID/C1 May.

SIG 7 & 8 MX-2587/FSG-1 May.

SIG 7 & 8 OA-2396/FSG-1 May.

SIG 7 & 8 OA-2398/FSG-1 May.

SIG 7 & 8 OA-2401/FSG-1 May.

SIG 7 & 8 OA-2402/FSG-1 May.

SIG 7 & 8 OA-2404/FSG-1 May.

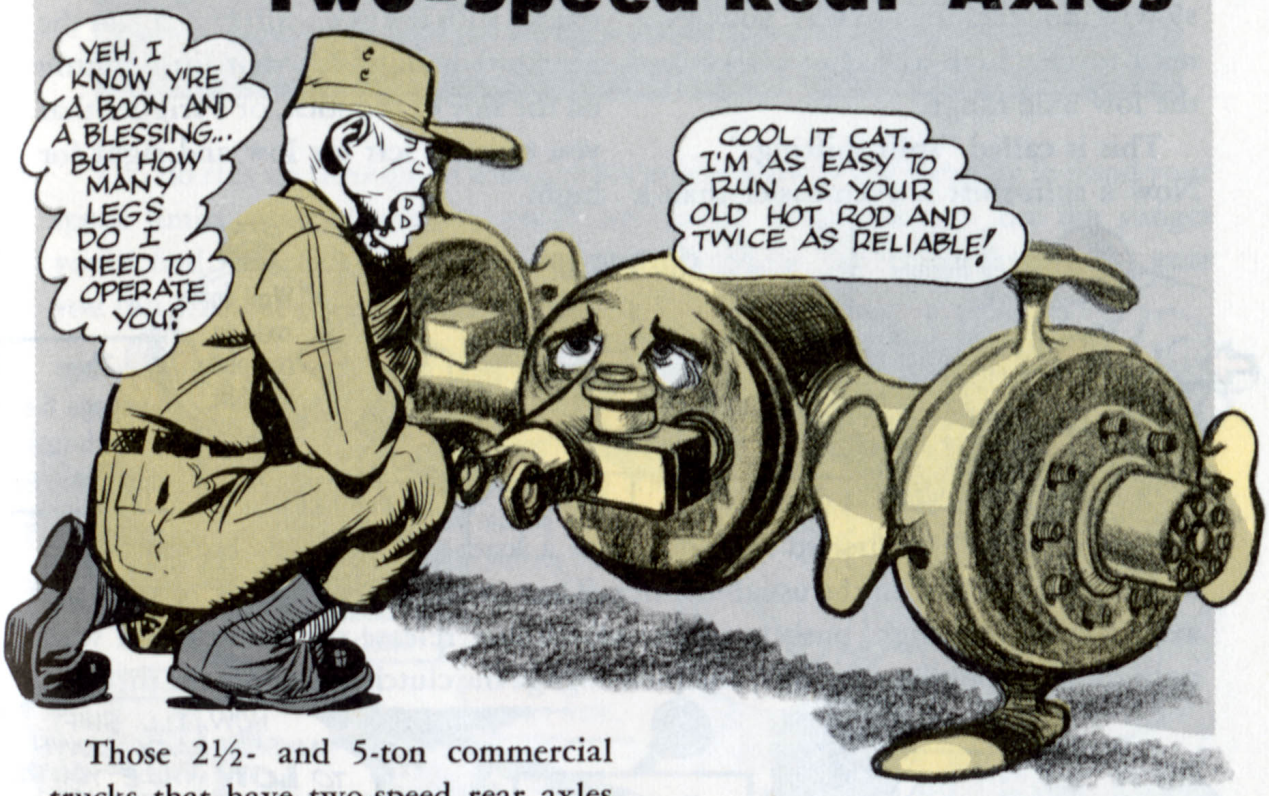
SIG 7 & 8 OA-2413/FSG-1 May.

SIG 7 & 8 OA-2414/FSG-1 May.

SIG 7 & 8 OA-2462/FSG-1 May Channel Gate Gen Gr.

YOU WORKING ON A SPLIT SHIFT?

Two-Speed Rear Axles



Those 2½- and 5-ton commercial trucks that have two-speed rear axles can do a lot for you if you know how to use 'em.

Y'see, the two-speed axle's not like the high- and low-ranges in the transfer case of your tactical vehicles. It's a real **close** shift. In other words, if you start your truck in transmission low, axle-low, shifting to axle-high will give you a ratio about halfway between transmission low and transmission second.

Then as you continue to pick up speed, you shift to transmission second, but at the same time you shift the axle back to low. This gives you a gear ratio higher than transmission low, axle-high, and you go picking up speed.

Your next shift is to axle-high—one step higher. Then, of course, when you shift to transmission third, you put the axle back to low again.

On most combinations, this goes on all the way up to fifth gear, axle-high which gives you a total of ten forward speeds, each one a little higher than the one before.

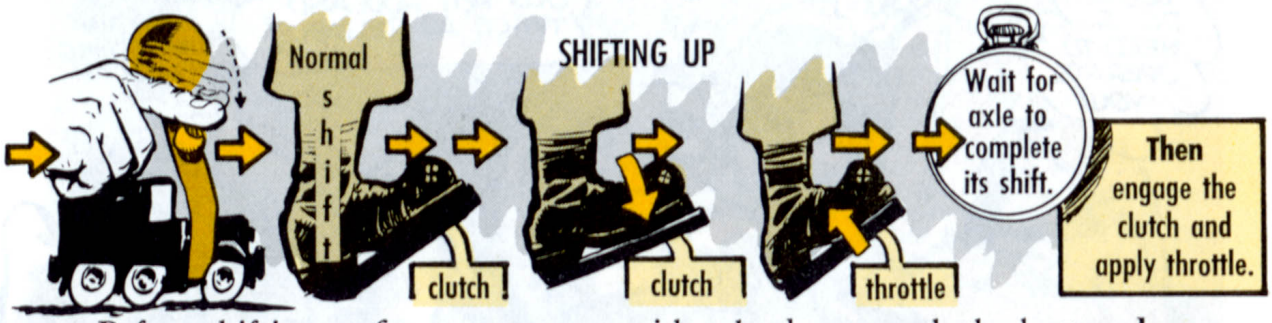
Downshifting works the same way. First you shift your axle down from high-range to low-range, then as you shift your transmission down, you shift the axle back up. Once more you'll find you have ten gear ratios.

On some jobs, the transmission has a "short" fourth gear ratio—that is, fourth is real close to fifth in ratio. On these jobs, you shift the same thru third gear, but differently from fourth up. You shift fourth low, fifth low, fourth high, fifth high.

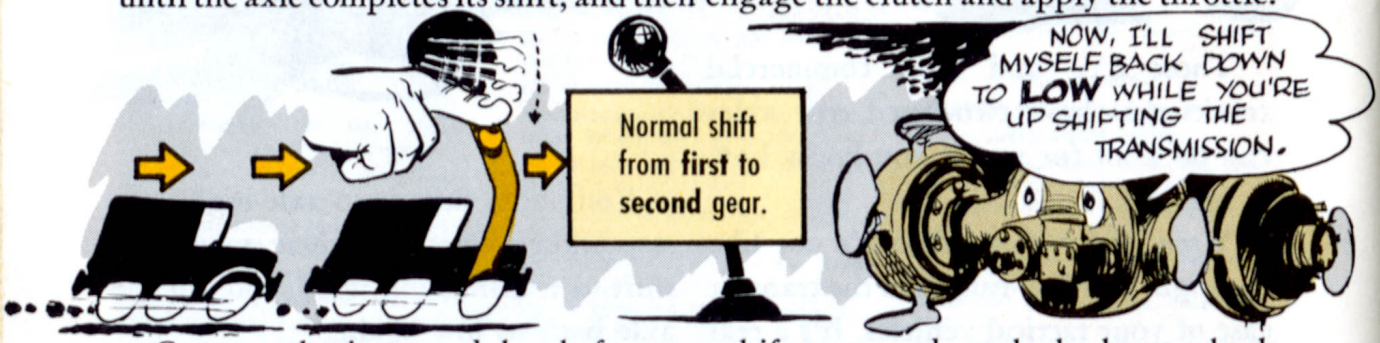
MORE

You also have two speeds in reverse, but since you always back your truck slowly and carefully anyway, you never need reverse high axle, but always use the low axle range.

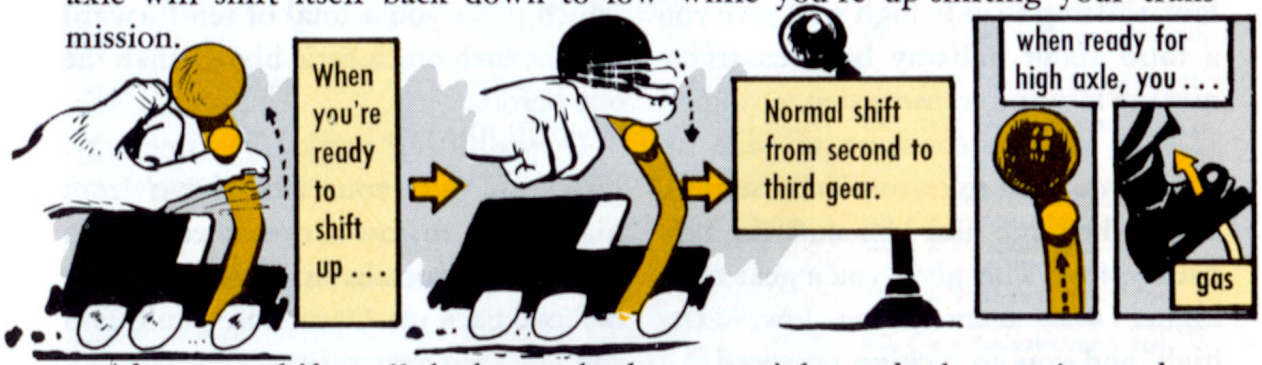
This is called "split-shifting." Now a split-shift is even easier than a regular one. Here's how you work it: You'll most likely have one of the newer trucks with the axle-shift control on the gearshift handle. It's that little button on the side of the stick, or a trigger that you twist to left for low and right for high.



Before shifting to first to start out with a load, you push the button **down**, or left, then start off in the usual manner. Then, when you are ready to shift the axle from low to high, push in on the clutch and release the throttle and wait until the axle completes its shift, and then engage the clutch and apply the throttle.



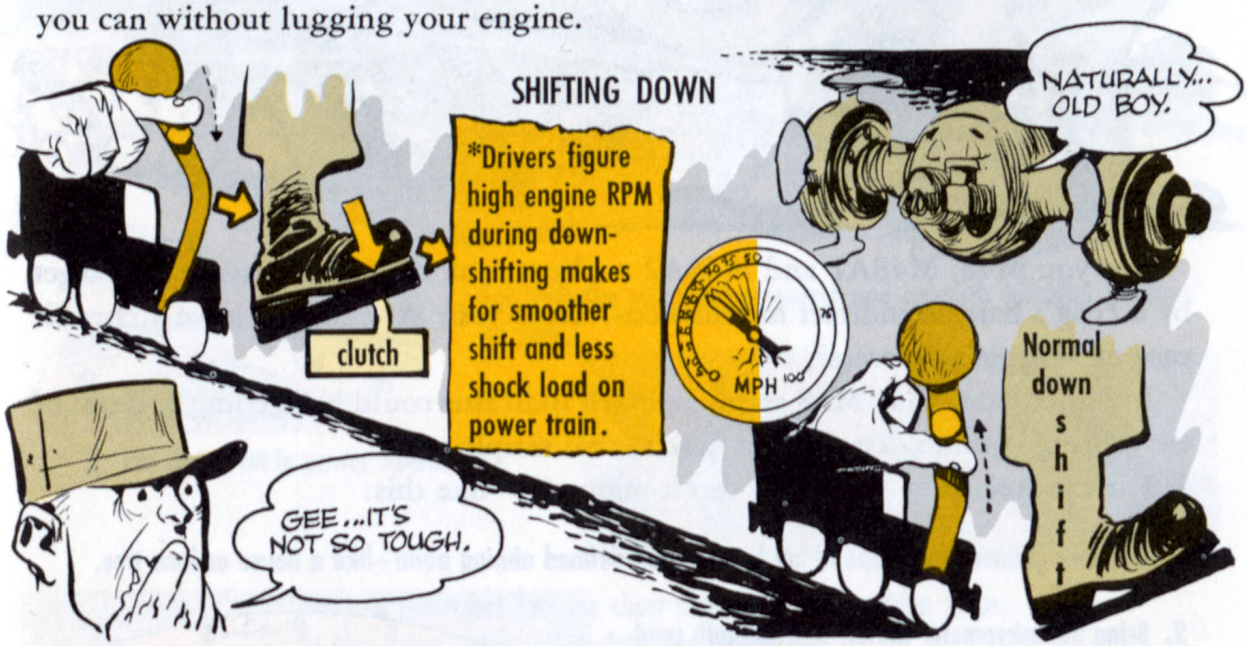
Go on gathering speed, but before you shift to second, push the button back **down**, or left. Make your shift from first to second just as you always do. The axle will shift itself back down to low while you're up-shifting your transmission.



After your shift, pull the button back **up**, or right, and when you're ready to shift the axle up, release the clutch and throttle again. You do the same thing for your shift from second to third. Push the button **down**, or left, and then make your shift in the regular way. Then pull the button **up**, or right, again and slack your throttle when you're ready for high axle.

CAREFUL: Don't pre-select the axle too far in advance of the actual shift. Because changes in traffic conditions or road conditions could make you shut the throttle, resulting in an axle shift you didn't want. Pre-select the axle just before making your shift and play it safe.

You do this up through as many gears as you want to use, bearing in mind your speed limits, road conditions, grade and loads. Somewhere in the ten ranges you'll find just the right ratio to run in. Naturally, you'll use the highest gear you can without lugging your engine.

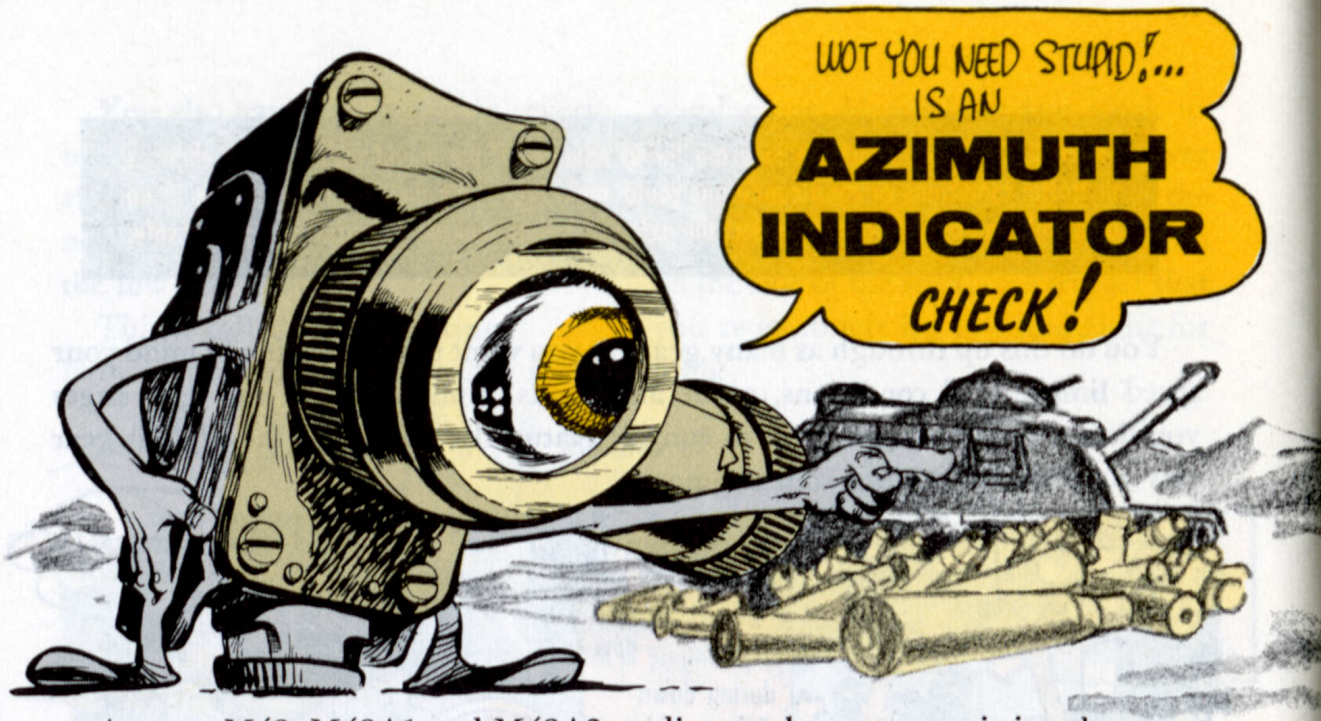


Shifting down with the transmission in its highest gear and the axle in high, you first drop to low axle, by pushing the button **down**, or left—then either slacking your throttle or kicking your clutch. (On the down shift some drivers like to leave the throttle floored and give the clutch a quick kick. They figure this lets their engine pick up speed while the axle is shifting, and makes a smoother shift with no loss of speed. Also, it reduces shock load on power train. Then when your vehicle speed falls off some more, you pull the button back **up**, or right, and make a regular downshift to the next lower transmission gear.)

You repeat this operation by "splitting" each transmission gear with a rear axle shift.

Double-clutch drivers will find that the same rules apply to shifting the transmission with the axle shift—with one exception. On an upshift, since you are not making as great a gear change, you don't wait as long between shifts for the engine to slow down, and on a downshift you don't accelerate quite as much between gears. Other than that, shift like always.

It'll take you quite a little practice to learn to make the best use of your two-speed axles, but once you catch on you'll never want to be without 'em.



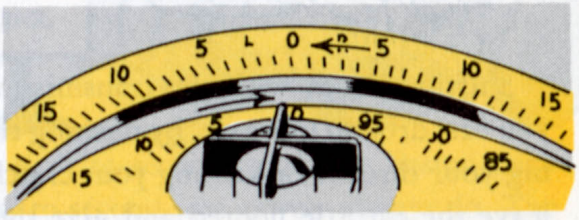
Are you M48, M48A1 and M48A2 medium tank crewmen missing the target by a frog's hair on indirect fire missions? Does your 90-mm gun have a chronic case of Maggie's drawers?

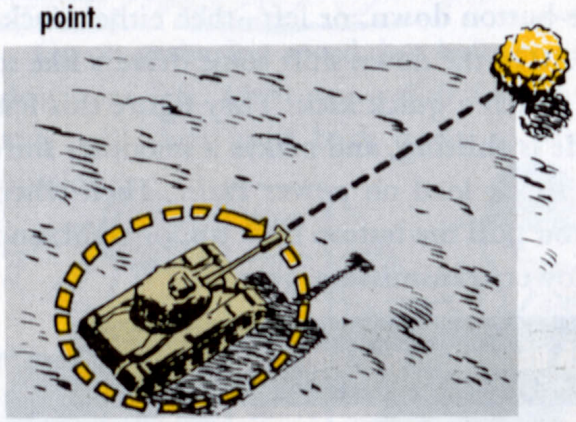
In either case, your M28 series azimuth indicator could be keeping you out of the scoring column. To check it here're two simple tests.

For the **Accuracy Test,** you check manually—like this:

1. Use your gunner's periscope to lay in on a well-defined aiming point—like a house or lone tree.

2. Bring the micrometer (outer) and azimuth (middle pointers to zero. It's your best reference point.



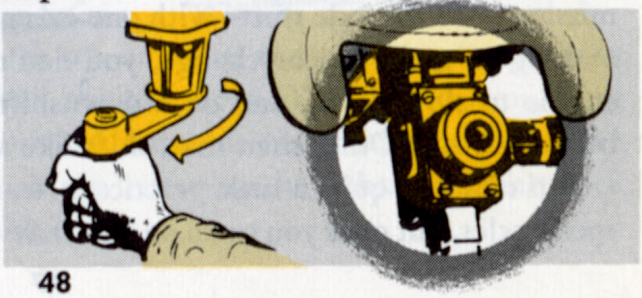


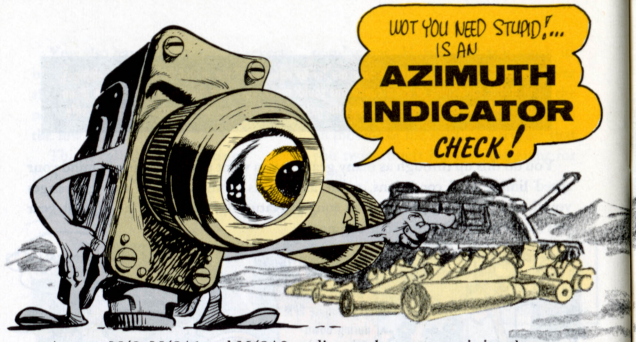
3. Then, while looking through the gunner's periscope, manually traverse the turret in a complete circle (360°). Be careful not to overrun the aiming point, stopping exactly on target.

4. The micrometer (outer) and azimuth (middle) pointers should read zero.

For the **Slippage Test,** you use both power and manual . . . like this:

1. Manually lay on a well defined aiming point with your gunner's periscope.





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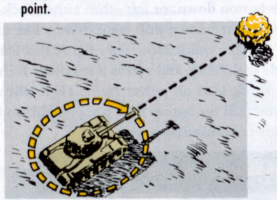

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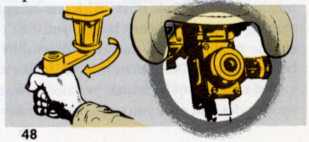
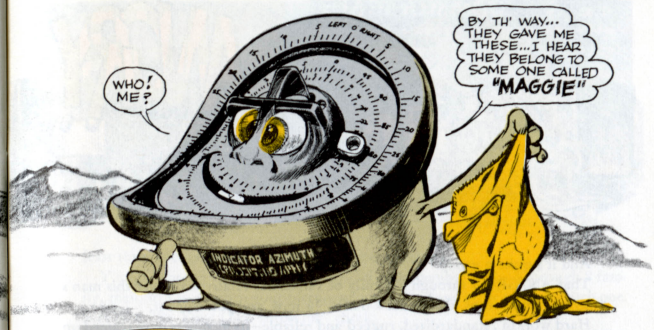
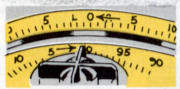
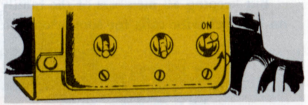






2. Set both the micrometer (outer) and azimuth (middle) pointers on zero.

3. Put the turret in power operation.



4. Traverse the turret fast for short distances—with sudden stops. Do this a few times—all in the same direction.

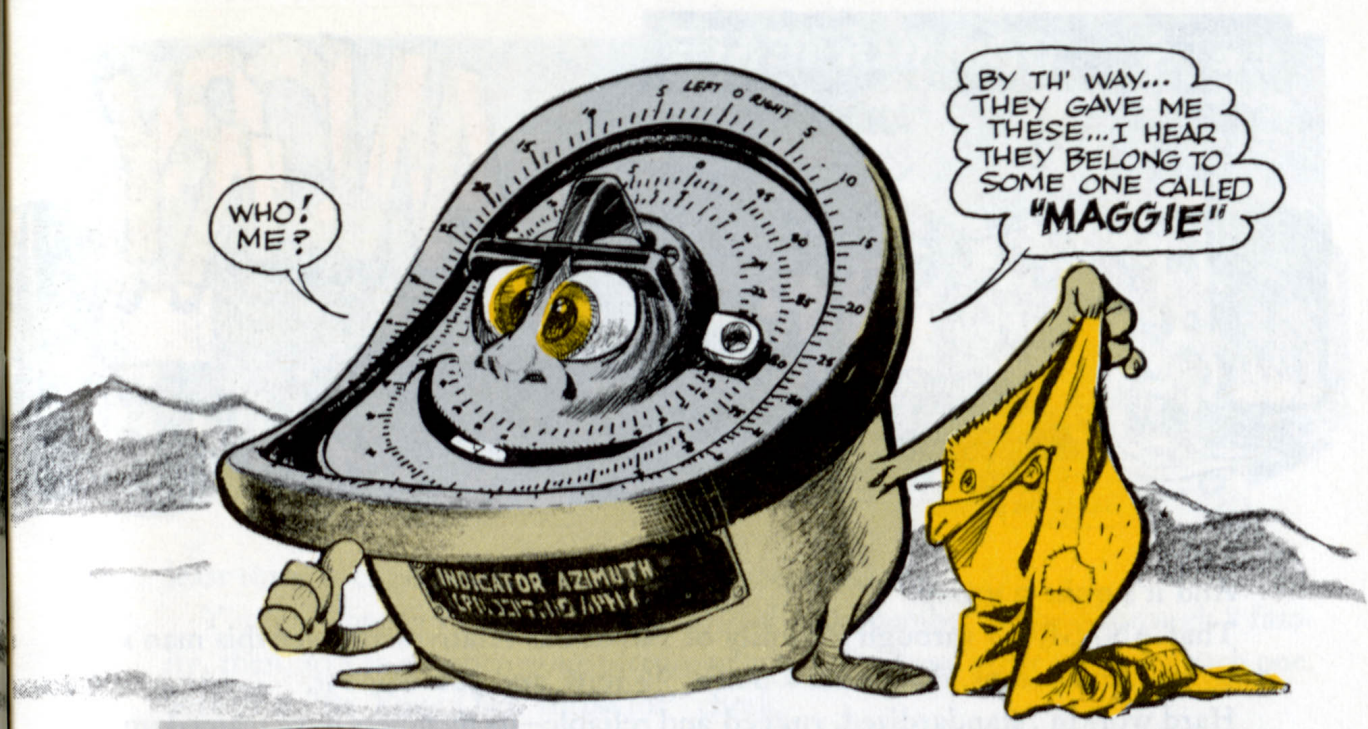
5. Turn the power off before making a complete circle (360°).

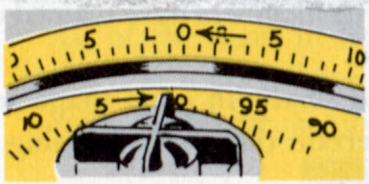
6. Manually traverse the turret in the opposite direction back to the aiming point.

7. The micrometer (outer) and azimuth (middle) pointers should read zero.

8. Test in both directions.

If pointers don't read zero in either the Accuracy or Slippage Tests, holler for your Ordnance support unit. You can now be sure there's something wrong with your azimuth indicator.





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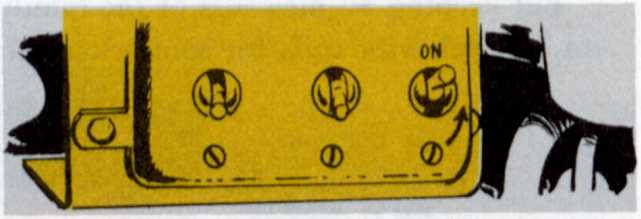

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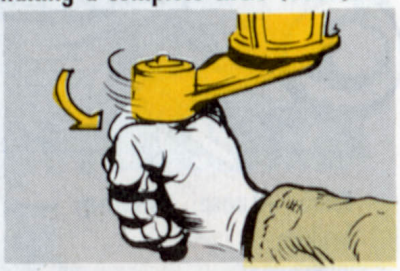

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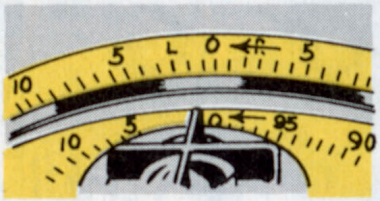

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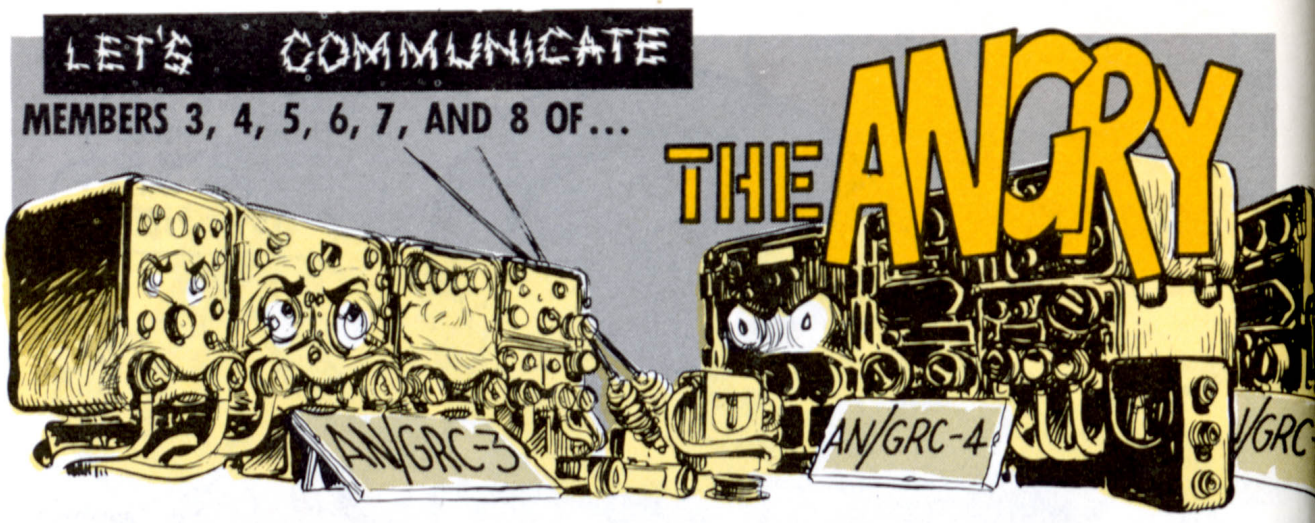
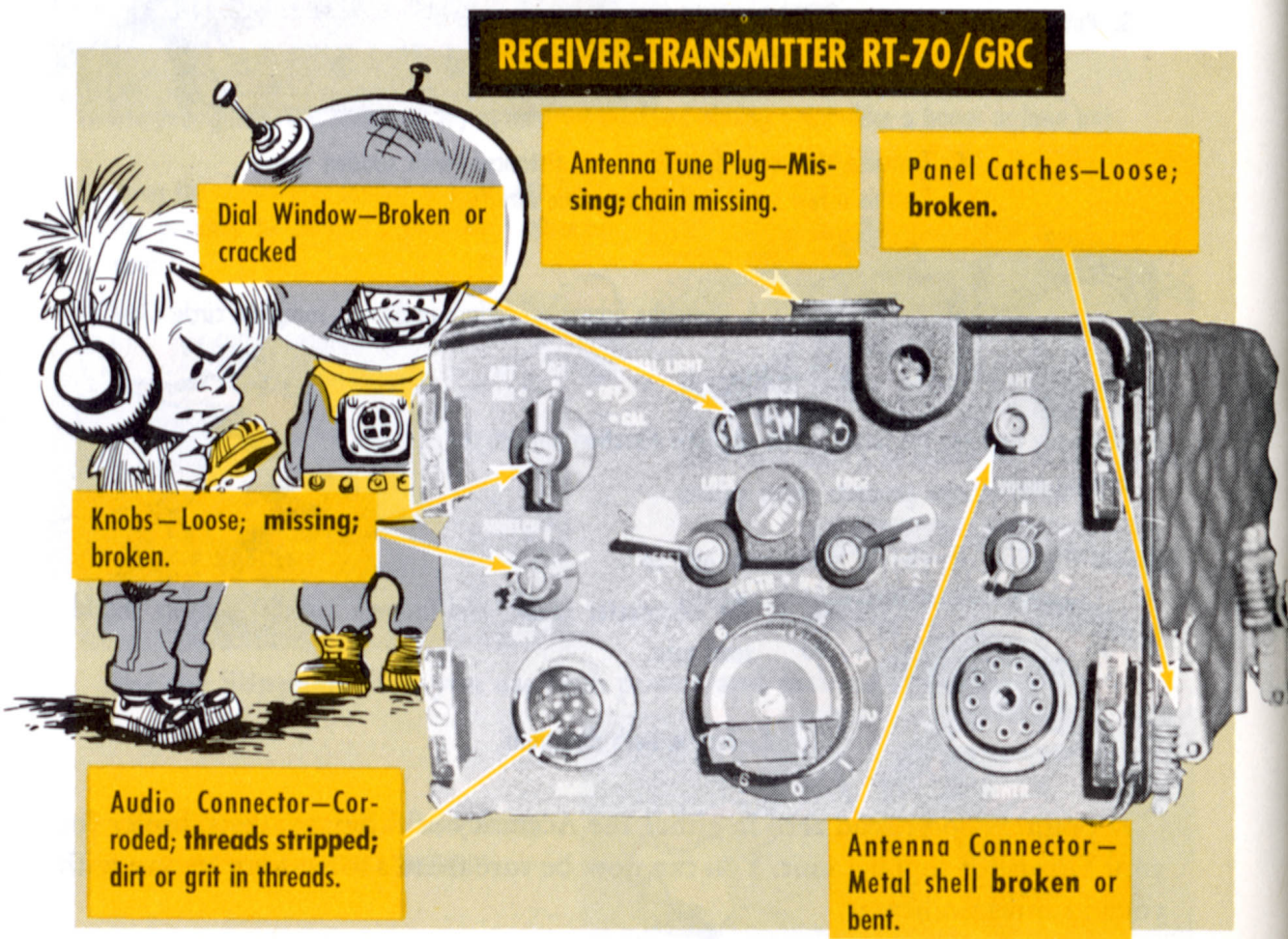


And it's quite a group.

That AN/GRC-3 through 8 family of radios has relatives all over this man's army. In tanks, jeeps, deuce-and-a-half's, ¾ tons, and you name it.

Hard workin', standardized, rugged and reliable—its members have teamed up in various combinations to get the message through.

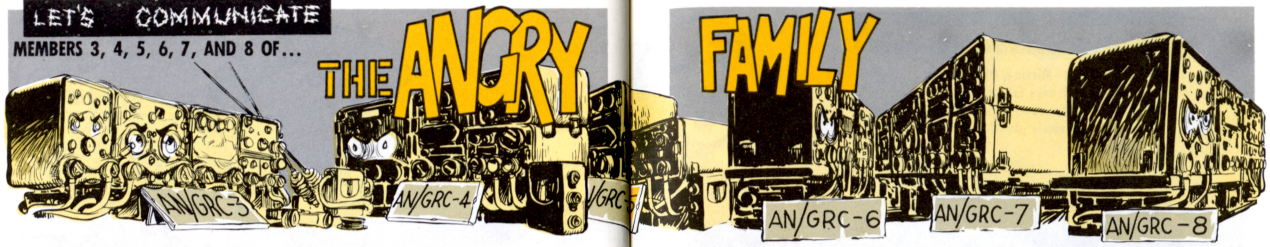
But keeping all members of the family—large and small—in good shape and on best behavior calls for some close attention at certain times plus keeping at



LET'S COMMUNICATE

MEMBERS 3, 4, 5, 6, 7, AND 8 OF...

THE ANGRY FAMILY



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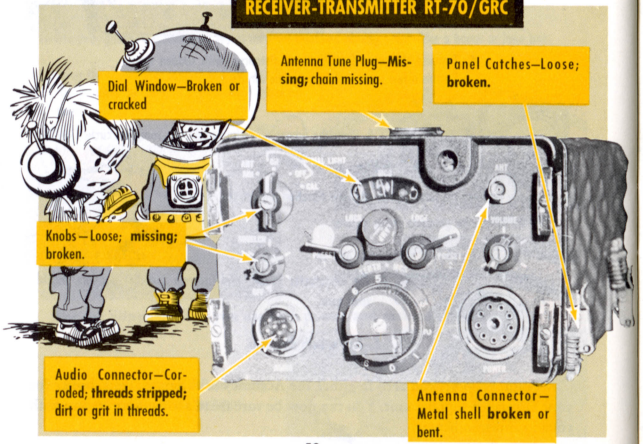
Y'might check this little "biography" of each member of the 3 through 8 family, then, so's to sharpen your picture of what's bad and what's best for each one. Sort of a "Be Your Own Inspector" check.

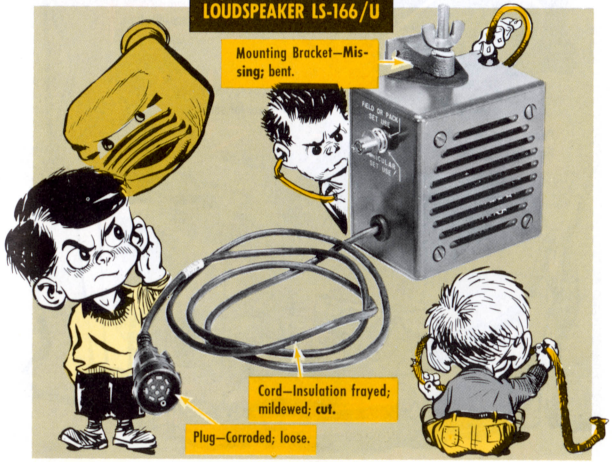
All of the items in **BOLD TYPE** are considered major deficiencies. Which means they must be corrected before the unit can go into action.

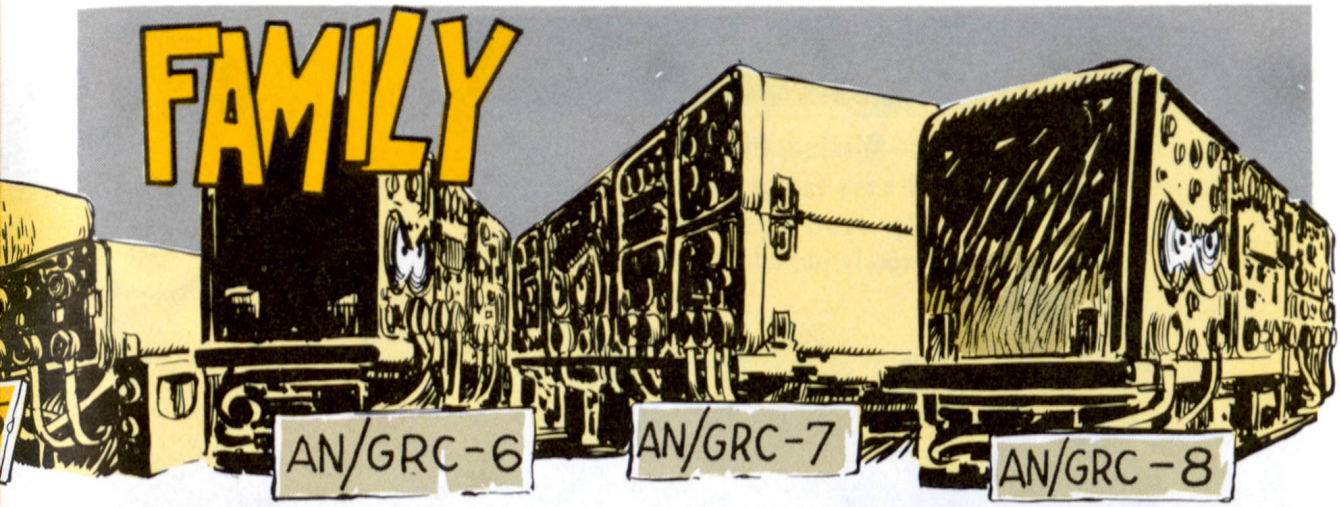
First, the larger members of the family:

RECEIVER-TRANSMITTER RT-70/GRC



LOUDSPEAKER LS-166/U





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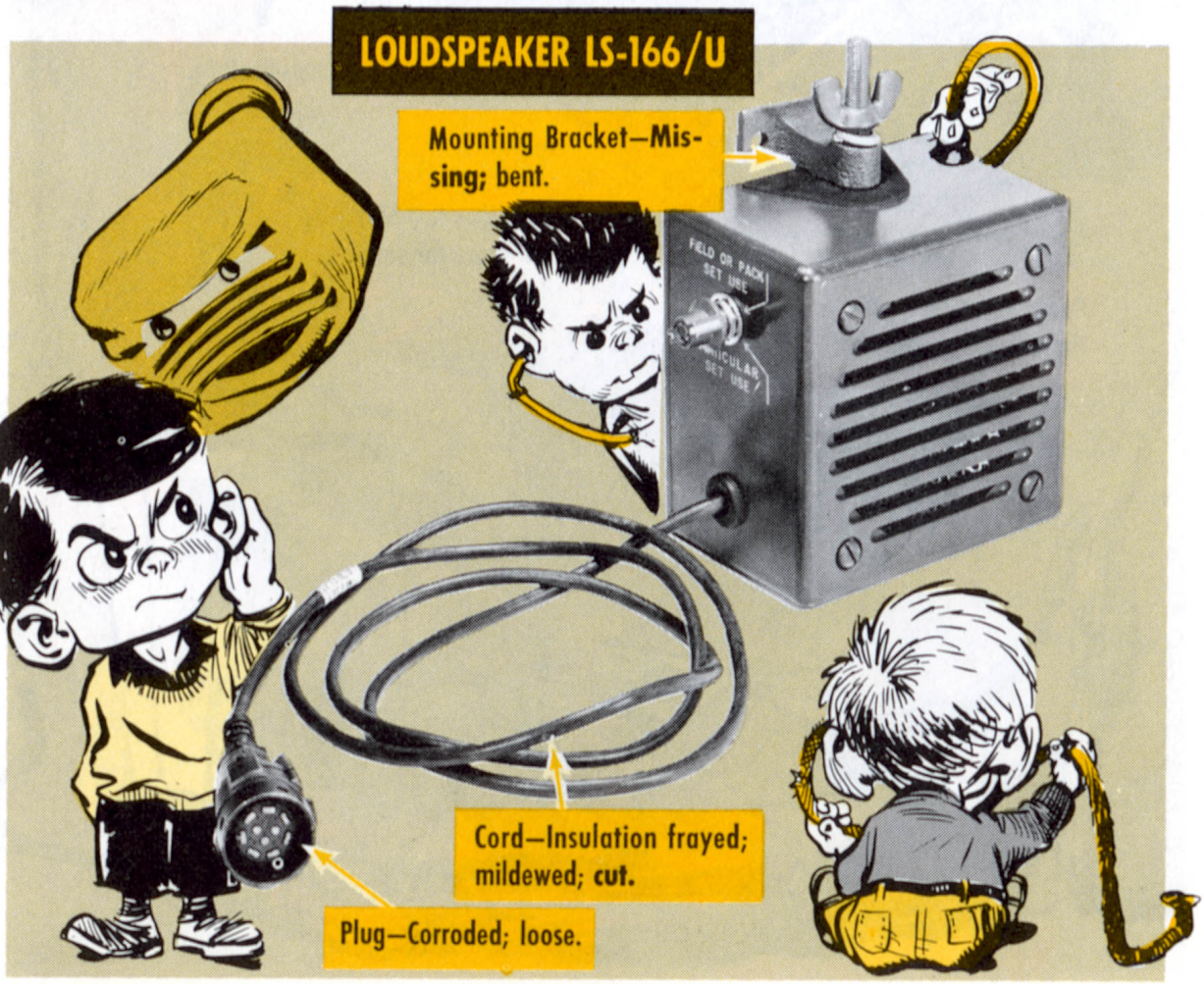
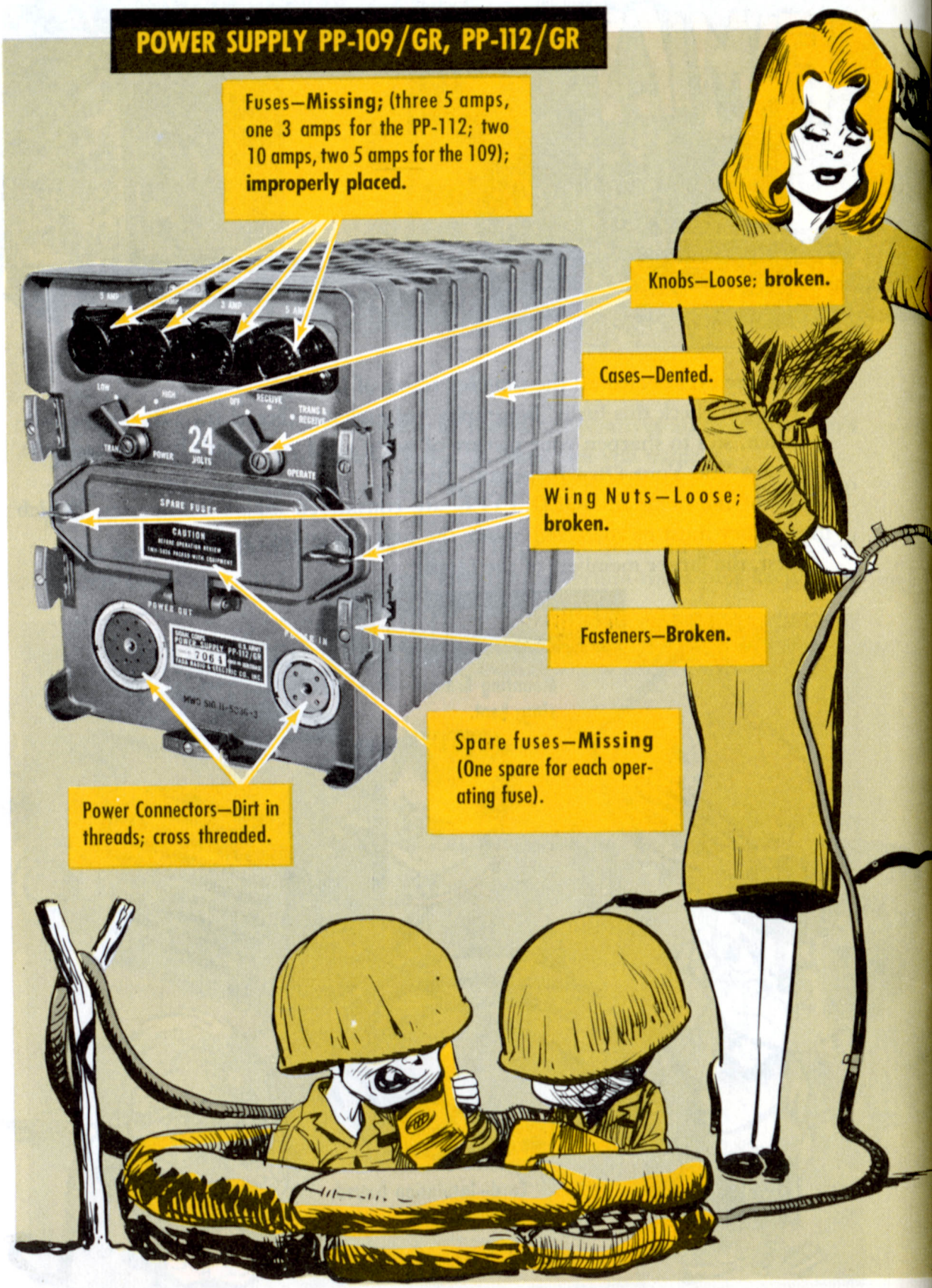
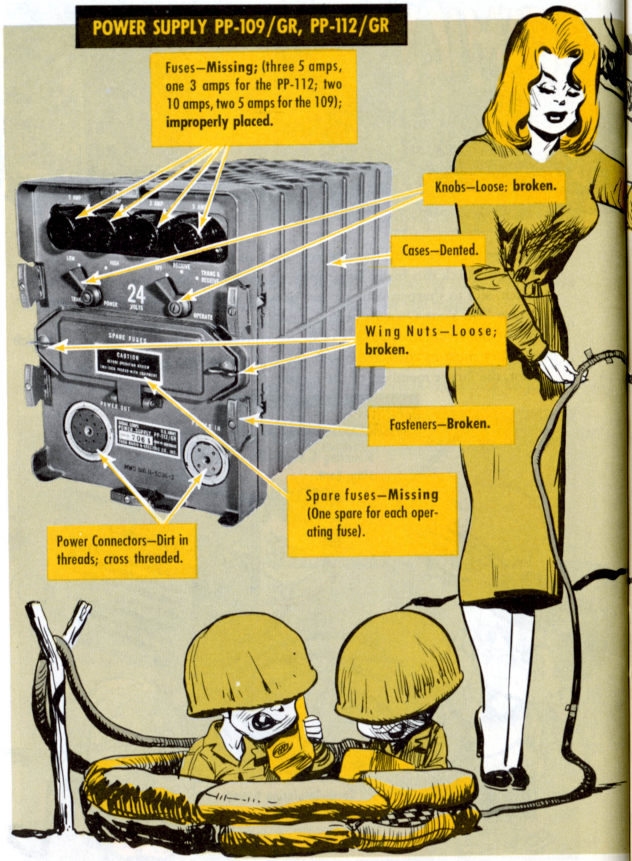



POWER SUPPLY PP-109/GR, PP-112/GR
Fuses—Missing; (three 5 amps, one 3 amps for the PP-112; two 10 amps, two 5 amps for the 109); improperly placed.
Knobs—Loose; broken.
Cases—Dented.
Wing Nuts—Loose; broken.
Fasteners—Broken.
Spare fuses—Missing (One spare for each operating fuse).
Power Connectors—Dirt in threads; cross threaded.
24 VOLTS
SPARE FUSES
CAUTION
POWER OUT
POWER IN
OPERATE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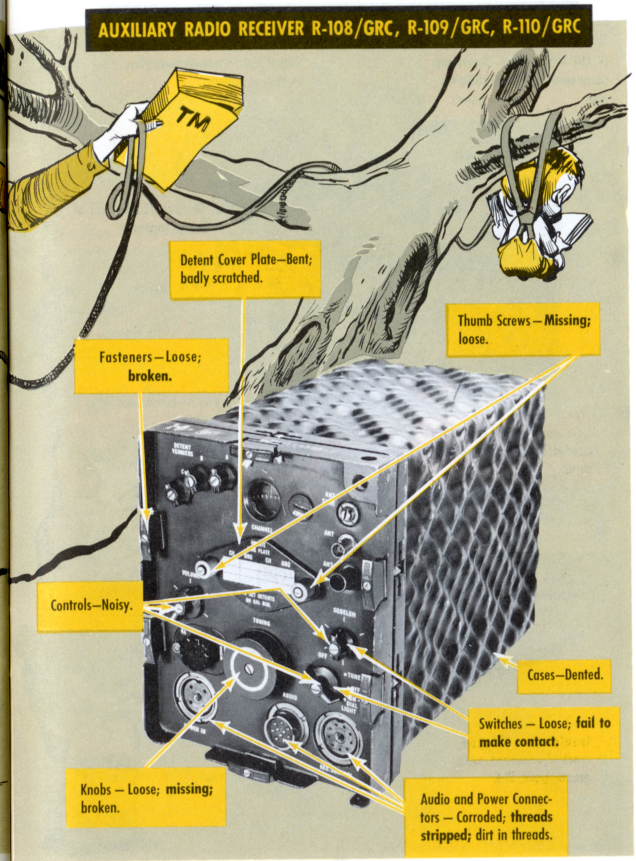
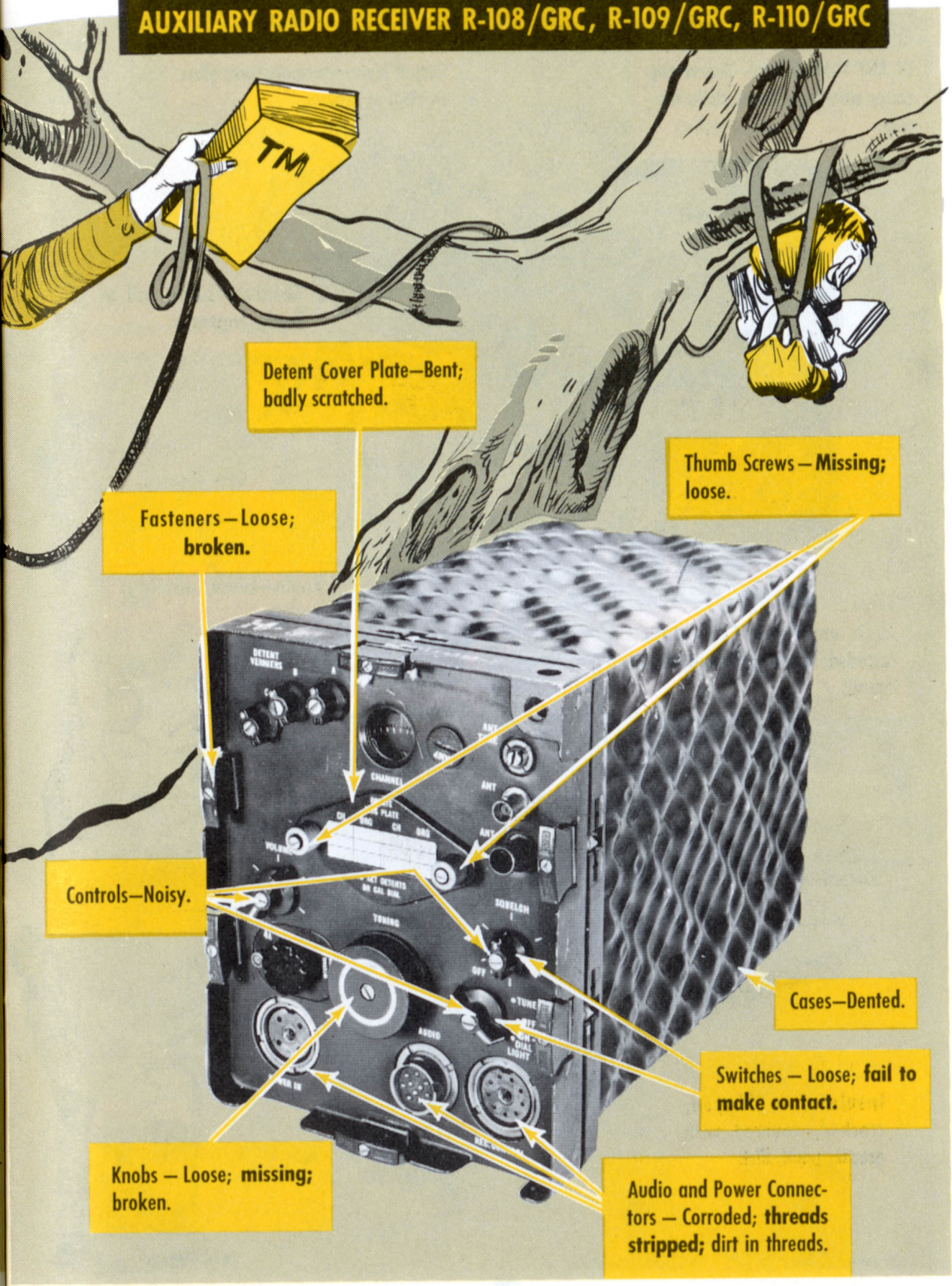

AUXILIARY RADIO RECEIVER R-108/GRC, R-109/GRC, R-110/GRC
TM
Detent Cover Plate—Bent; badly scratched.
Thumb Screws—Missing; loose.
Fasteners—Loose; broken.
Controls—Noisy.
Cases—Dented.
Switches—Loose; fail to make contact.
Knobs—Loose; missing; broken.
Audio and Power Connectors—Corroded; threads stripped; dirt in threads.

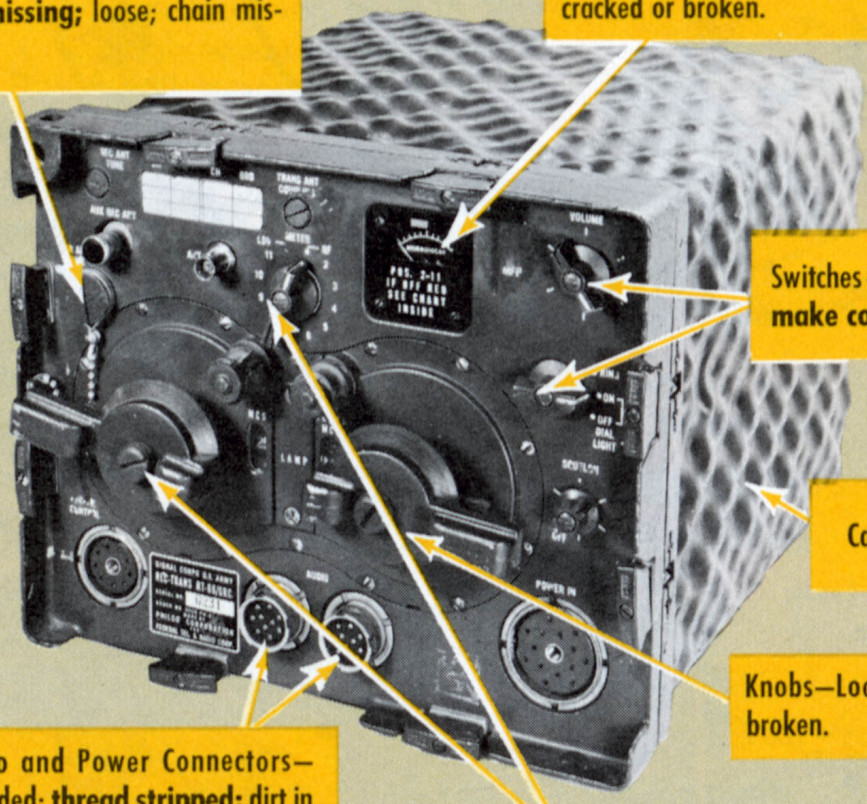
AUXILIARY RADIO RECEIVER R-108/GRC, R-109/GRC, R-110/GRC



RECEIVER-TRANSMITTER RT-66/GRC, RT-67/GRC, RT-68/GRC

TR ANT TUNE Control—**Screw cap cover missing;** loose; chain missing.

Output Meter—**Inoperative;** glass cracked or broken.



Switches—Loose; **fail to make contact.**

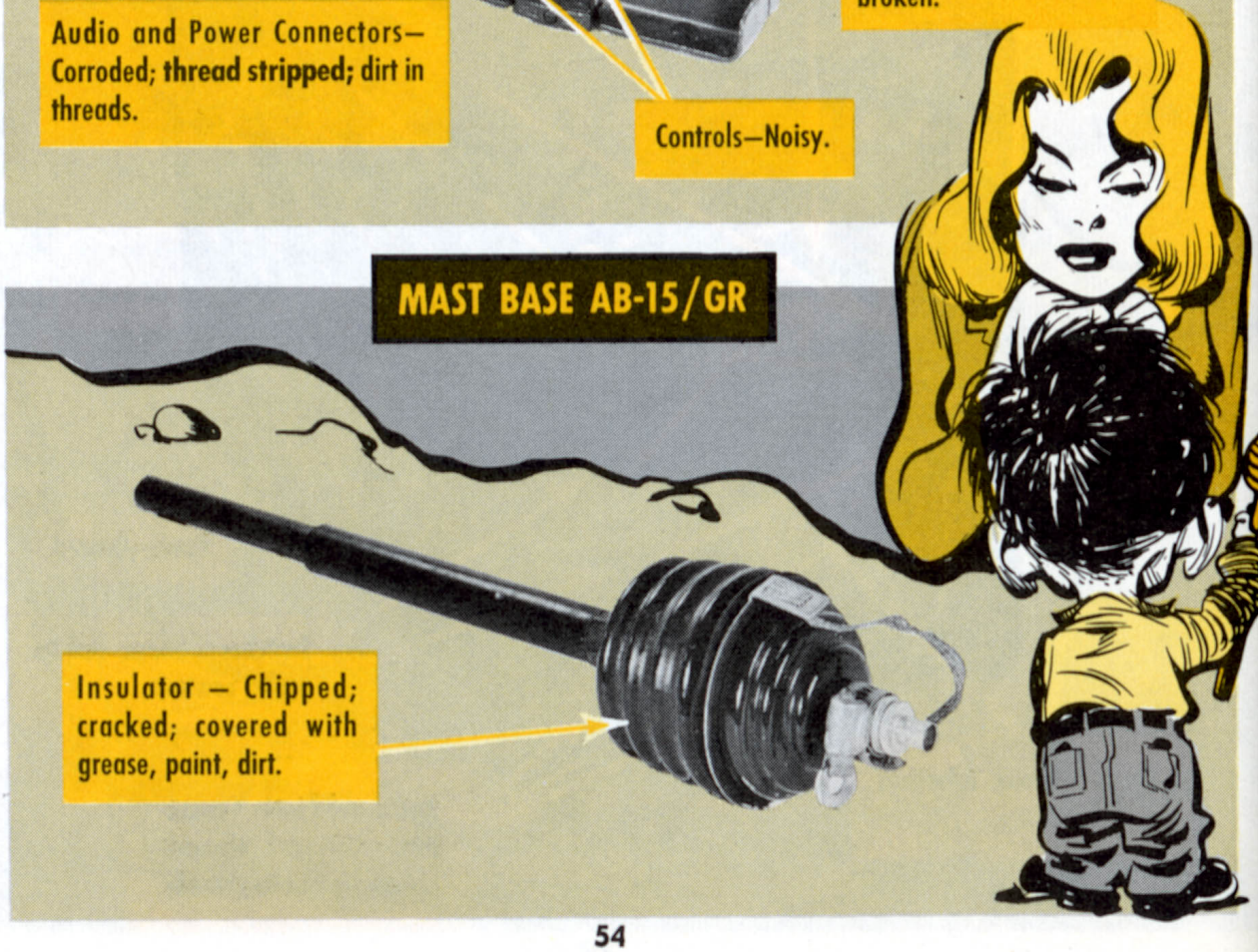
Case—Dented.

Knobs—Loose; **missing;** broken.

Audio and Power Connectors—Corroded; **thread stripped;** dirt in threads.

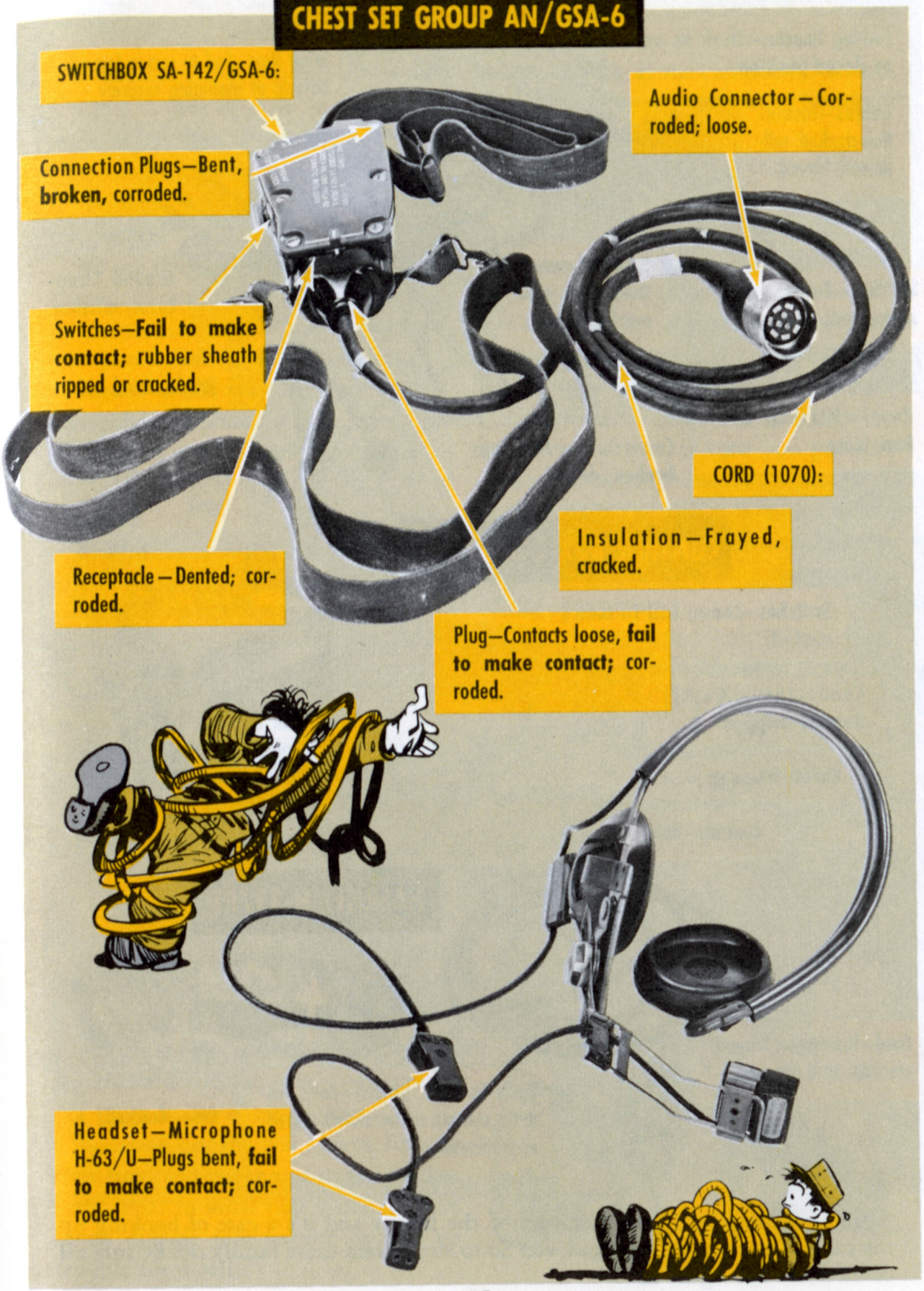
Controls—Noisy.

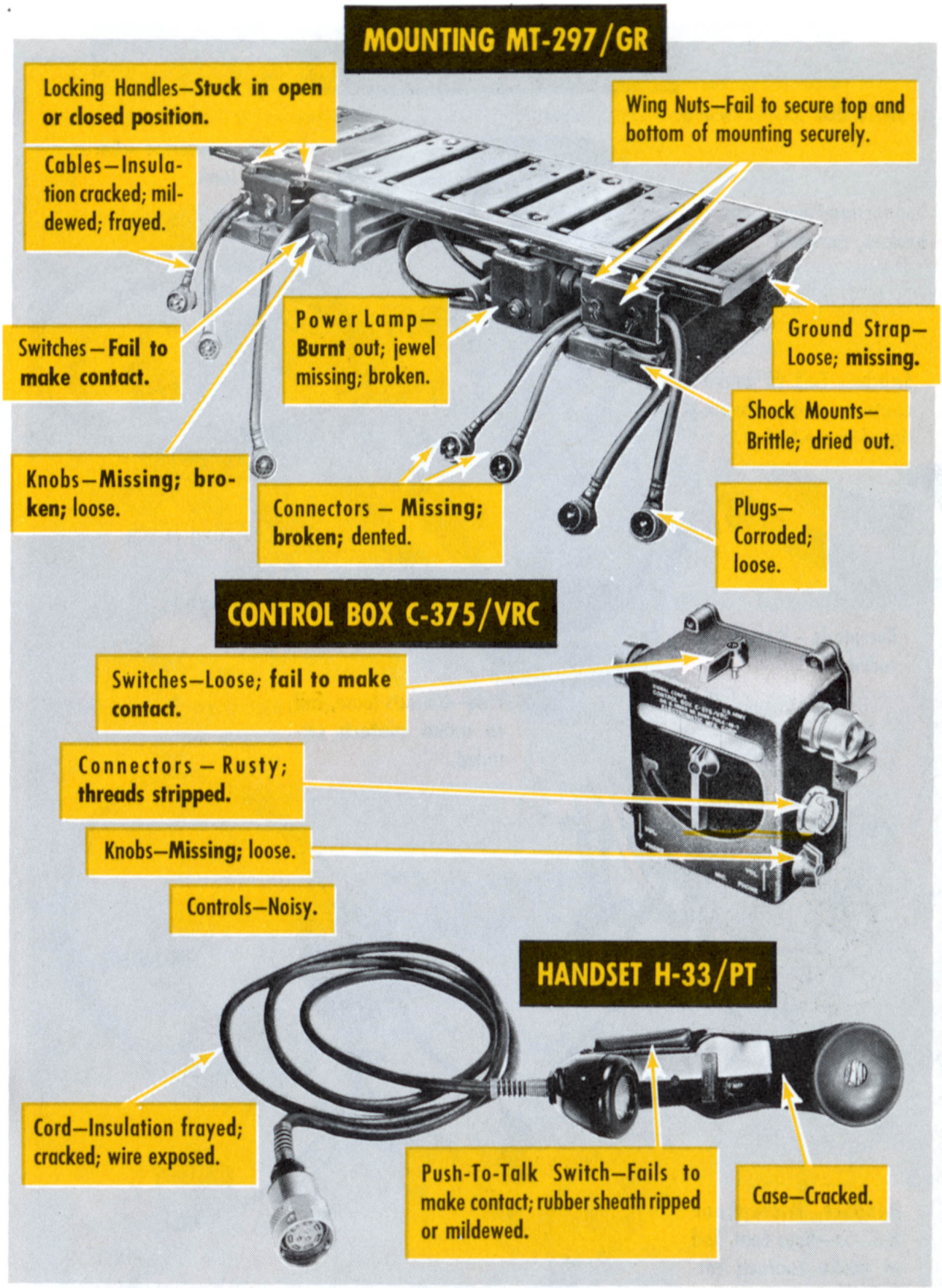
MAST BASE AB-15/GR



Insulator — Chipped; cracked; covered with grease, paint, dirt.

CHEST SET GROUP AN/GSA-6





Comes time to unite all members of the family and it's a case of hooking up the cables, connectors, antennas, etc. So to strengthen those family ties be sure all connections are tight.

HANDSET HINT

Remember those Grade-D movies where a couple of guys in a hurry are tryin' to close an overstuffed suitcase? One character jumps up and down on the luggage, while the hero tries to snap the catches!

It's not quite so amusing when a man tries something along the same line with the transmitter cap on the earlier models of the H-33 ( )/PT Handsets.

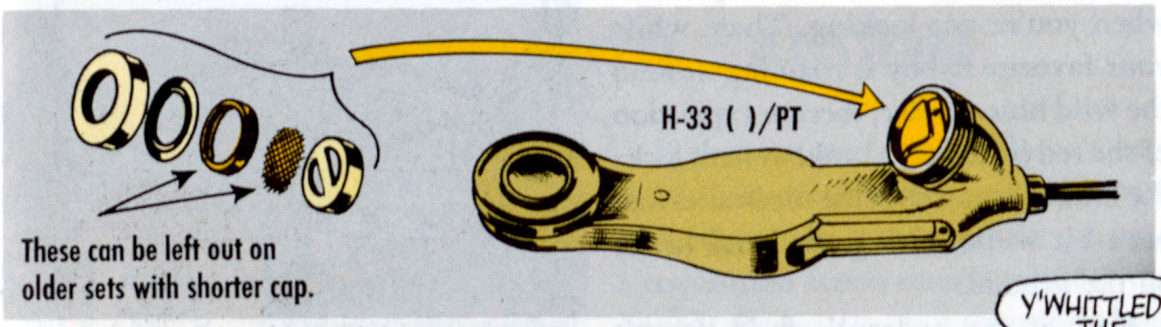
Figure it this way. By the time the microphone element, screen guard, gasket, washer and microphone cap are all screwed on—you've got quite a lot of "stuffin's."

So much, as a matter of fact, that it's practically impossible to screw the cap on more than one complete turn. Don't sweat, though, if the cap doesn't screw completely down to the final housing thread.

'Cause the housing has extra threads so's to hold the element snugly in position...even when the gasket, screen, washer and breath-shield get lost. The latest caps have at least one extra thread so's to allow for a better holding job.

But if your unit still has the older, shorter caps, you might try leaving out the screen and gasket of the breath-shield assembly next time you put together the microphone components.

That will give you at least one extra thread engagement and seat the whole assembly without affecting the quality of the operation.

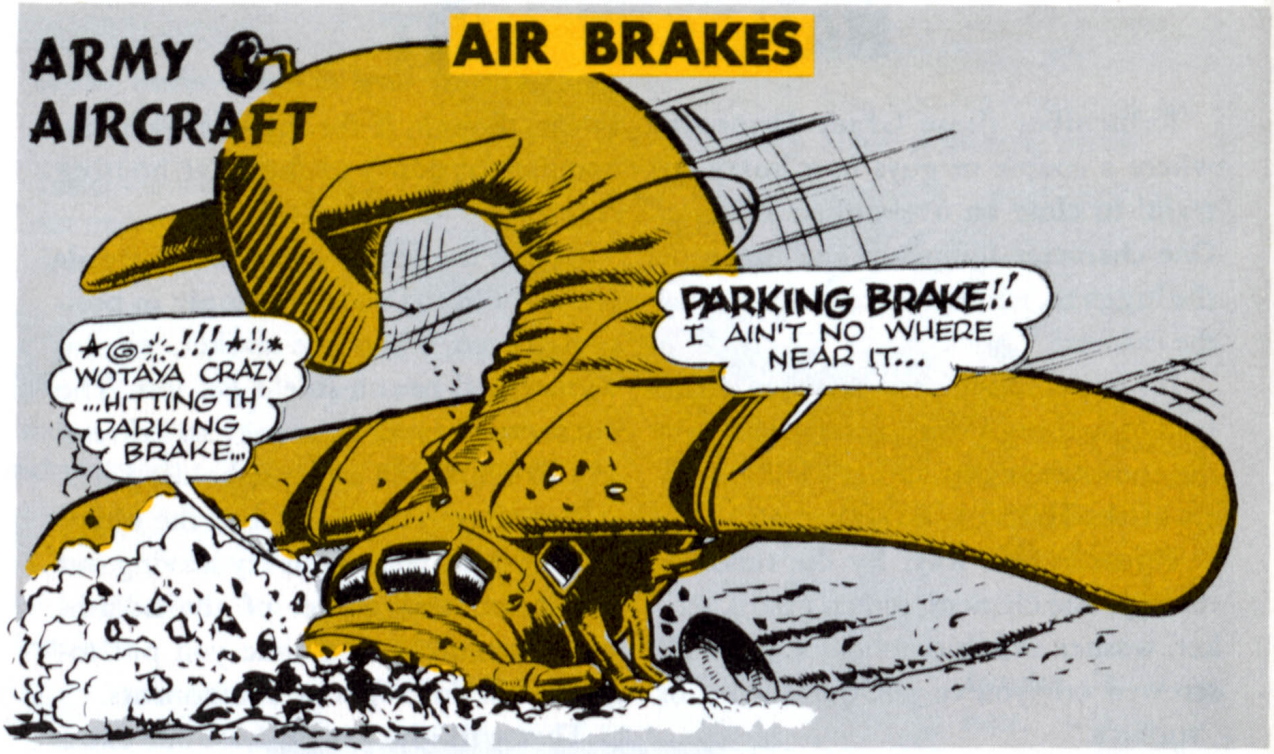


SOME CRUST

That "crust" you sometimes spot on the outside of those NYLON BB-403/U cells is strictly a danger sign.

It's caused by the phenol used in making the cells and it makes a perfect hiding place for stray electrolyte.

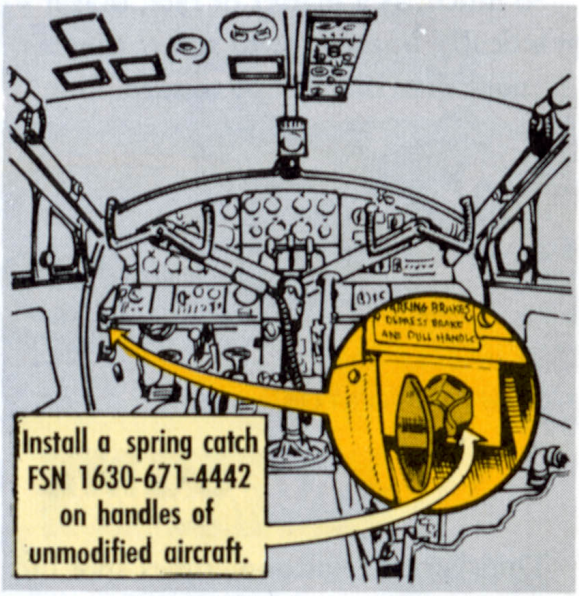
So break out the pen knives, files, or even fine sand-paper and scrape off that crust. Bear in mind that it doesn't take much outside interference to pile up trouble for a cell.



Some of those Otter (U-1A) parking brake handles have a nasty habit of vibrating into the locked (ON) position when you're not looking. Then, while your favorite flyboy is roaming around the wild blue yonder, thermo expansion of the red juice in the brake system locks the brakes—same as if the toe brakes had been hit while setting the hand brake on the ground.

Even if the hydraulic fluid doesn't expand upstairs, it only takes one application of the toe brakes while landing to finish the job. And loss of directional control during a landing roll usually results in more work for the accident investigation boys.

This accident-looking-for-a-place-to happen exists on Otters manufactured before serial number 57-6107. Since some of the earlier ones have been modified already, just worry about those Otters with serial numbers 55-2973 thru 55-2978 & 55-3244 thru 55-3327.



If you're twisting a wrench around one of these, look up item eight under project 59-1888 in TB AVN 23-5-9 (29 Sept 59). It supersedes the entry under project 58-4438 in TB AVN 23-5-1 (1 Jan 59). The later copy of the UR Digest passes the word to install a **spring catch,** FSN 1630-671-4442 (P/N C3CF603-11), on the handles of the unmodified aircraft.

SOMETIMES A MICROMETER IS...

A PILOT'S BEST FRIEND

Nobody enjoys seeing 10 inches of tail rotor blade come flying by his cockpit on touchdown...and then lose his whole tail rotor assembly, to boot.

Luckily, it was a walkaway situation. But it could have happened in the air. Now, since the safety of pilots sometimes gets ground crews all shook up, listen to this:

This near one involved an H-13H—that's the Sioux with the **metal** tail rotor blades. The busted tail blade was later checked with a micrometer and found to be on the lean side. In-flight vibration did the rest.

The new TM 1-1H-13-538, dated 22 Jan 60, with Change I (28 Apr 60) clues everybody on how to be sure these metal tail rotor blades show the minimum safe chord thickness.

The **new** TM changes some of the info used in the old TM. So check it carefully to see what you have to do on each model of the Sioux.

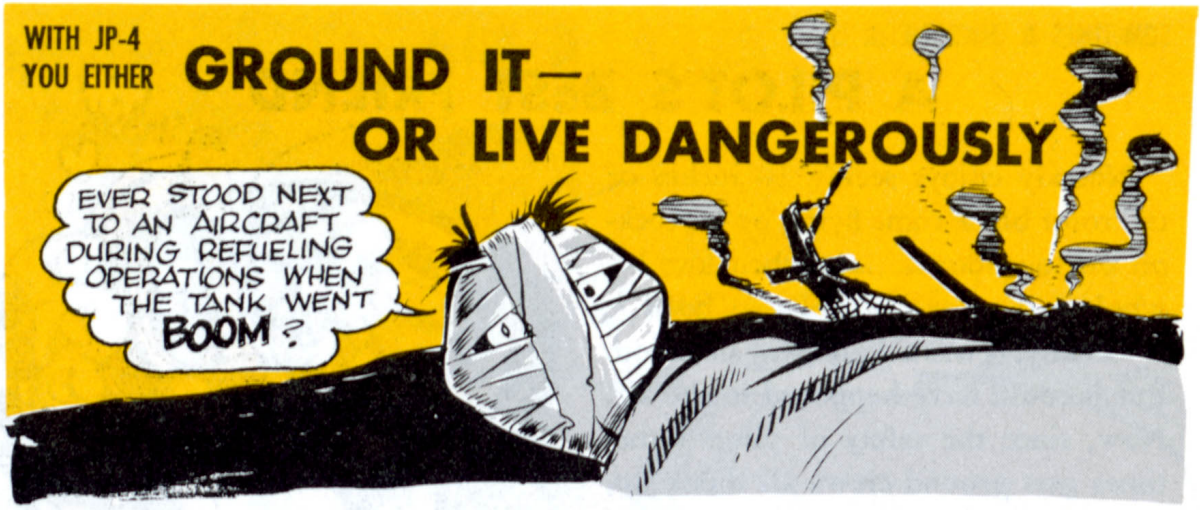
EDP—USE WITH CAUTION

Everybody knows AOCP (Aircraft Out of Commission for Parts) has gone the way of the old grasshopper. Today it's EDP (Equipment Deadlined for Parts) that brings home the emergency-type bacon.

But EDP won't work any better than AOCP if you spoil a good thing by overusing it. Too many EDP requisitions on your depot at one time will kill the goose with the golden eggs, and all you'll get from the goose is a south wind with turbulence.

If the part you're after doesn't happen to be stocked in the supply system, it still might take you longer to get it on a requisition action than it would if you bought the part, made it or cannibalized it locally. In other words, try everything else available to you before you EDP.

Hold off on the EDP reqs as a last resort until your support outfit tells you that buying, making or cannibalizing that part is no-go. That'll automatically increase your chances of getting faster action from the depot-types. After all, the fewer EDP orders coming through, the easier it is to fill them when it really counts. An EDP kite in the hangar is about as useful to you as a Category B bird left to rot on the back forty.



'Course not . . . else you wouldn't be reading this right now.

With JP-4 fuel entering the scene for use in your Iroquois (HU-1A) turbine engines you've got to be extra careful not to encourage that big boom. A lot of you already know that JP-4 is a beautiful blend of fuels that comes closer to kerosene in looks than the avgas you've been used to handling. But it's not kerosene by any means.

The vapor pressure or volatility may be just as low, but an explosive mixture of JP-4 vapors and air can form in temperatures as low as —10 degrees F.

So every ground handling situation is a potential trouble operation. All it takes to ignite a storage or aircraft fuel tank full of the stuff is the smallest spark you can imagine—including those devilish little static electricity beauts. Even excessive fuel splashing or surface agitation, as the stuff's pouring into a **poorly grounded** tank, can build up enough static electricity to set it off. Keeping the nozzle below the fuel surface helps.

Anybody deciding to make a career out of fuel handling better remember to doublecheck the electrostatic bonding or grounding **before** twisting a fuel tank cap open or squeezing a fuel nozzle's trigger. And a supervisor type who's even more cautious than you, will definitely help you to continue enjoying life.

This stuff's so tricky that water's almost as much trouble as fire. Only, in this case, the pilot ends up on the dirty end.

Since JP-4 is denser than avgas, water takes longer to settle out and attracts other types of contaminants while it's in storage. Under cold weather airborne conditions, that suspended water can easily freeze any time before it reaches the fuel control unit.

And once ice hits the fuel screens, can engine starvation be far behind?

So, if you're working with JP-4 or around the place where it's kept, treat it with respect. Learn the easy way by reading through TM 10-1107-(26 Feb 60) "Petroleum Handling Operations for Aviation Fuels"—backed up by TM 10-1101 (14 Sep 55), "Petroleum-Handling Operations," with 3 Changes, and TM 10-1113 (24 Sep 59), "Petroleum Tank-Vehicle Operations."

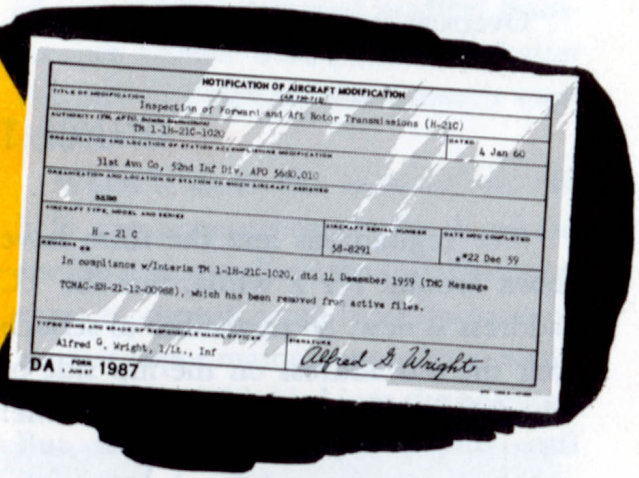
FOR REPORTING AIRCRAFT MODIFICATIONS...

IT'S 1987 EVERY YEAR

Just picture an index listing every single Transportation Corps time compliance issued since the year 1—and think how much fun it'd be to check out each one of your aircraft against the complete list.

That'll give you some idea of what could happen if TC never rescinded an outdated time compliance. Worse than that, try imagining the supply system possibilities with 'em trying to support every aircraft in the inventory under **both** the old configurations and the new ones resulting from each modification. You'd be just plain lucky if you got the right part for the right aircraft more often than the wrong one.

That's why DA Form 1987 (Notification of Aircraft Modification) is so important to the whole support system. If you fill one out correctly each time you've done a modification, then the 1987 file back in St. Louis, where those modifications grow, will be accurate.



NOTIFICATION OF AIRCRAFT MODIFICATION

TITLE OF MODIFICATION: Inspection of Forward and Aft Rotor Transmissions (H-21C)

AUTHORITY (TM, AFTO, Bulletin, Etc.): TM 1-1H-21C-1020

DATE: 4 Jan 60

ORGANIZATION AND LOCATION OF STATION ACCOMPLISHING MODIFICATION: 31st Avn Co, 52nd Inf Div, APO 5680,010

ORGANIZATION AND LOCATION OF STATION TO WHICH AIRCRAFT ASSIGNED: Same

AIRCRAFT TYPE, MODEL AND SERIES	AIRCRAFT SERIAL NUMBER	DATE MOD COMPLETED
H - 21 C	58-8291	22 Dec 59

REMARKS: In compliance w/Interim TM 1-1H-21C-1020, dtd 14 December 1959 (TWX Message TCNAC-8H-21-12-00988), which has been removed from active files.

TYPED NAME AND GRADE OF RESPONSIBLE MAINT. OFFICER: Alfred G. Wright, 1/Lt., Inf

SIGNATURE: Alfred G. Wright

DA FORM 1987

Besides, it only takes a minute or two, but cuts out maybe months of red tape for the supply system. That li'l yeller feller tells the engineers that you've applied such and such modification to so and so aircraft. Then the engineers pass the word to the supply people. That way more parts become available to support the birds with the "new look" caused by the "after" effects of the modification... and fewer parts are stocked to support the "before" jobs with the "old look".

Eventually, the 1987 card file tells the engineering people that all aircraft covered by a particular time compliance have been taken care of... and then that modification can be rescinded instead of cluttering up the publications system. The file also clues the supply people that they can drop all support on the unmodified version of those beasts. But it won't work that smoothly if you forget to **report** that you **made** the modification.

AFFECTS UR, TOO

Give that 1987 a little more thought and you'll realize how it helps out the UR program. With an up-to-date 1987 file, it cuts down investigation time and gives quicker, more accurate replies. Why? Because the file immediately tells if you've applied any outstanding modifications on the aircraft you're writing up which **might** affect the part covered by the UR you sent in.

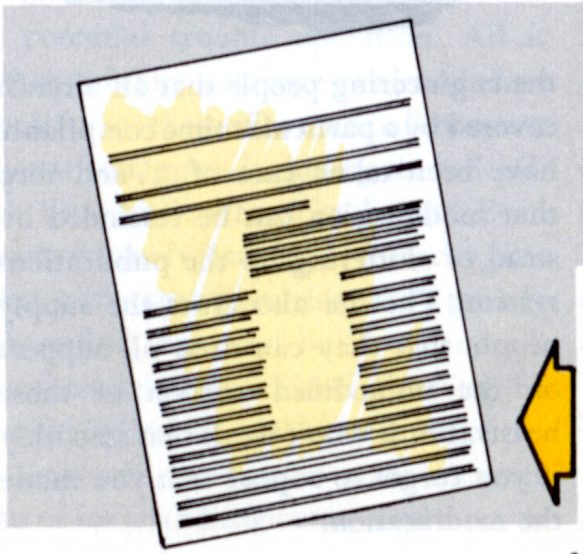
But if the file's blank because you didn't send in all your 1987's as soon as possible, then the TC boys might waste a lot of your time telling you to do what you may have already done . . . and you'll walk away from the mailbox muttering under your breath.

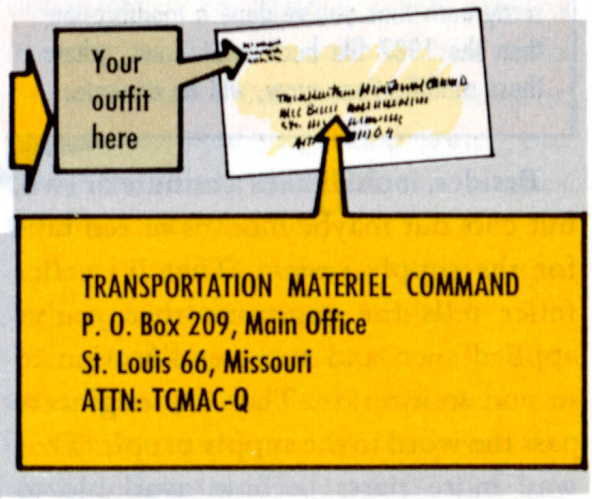
Overseas, your commander will decide if each modification should be complied with, depending on whether it could interfere with your local tactical situation or support operations. Then your Army or Area commander will let both you and TC know about his decision.

Where there're no local rules to guide you, follow AR 750-712 (5 Jun 57). The word in the AR is you make out a 1987 on everything that doesn't come under an exception to the regs. To make it easier for you, para 6c says each modification involving a kit includes a 1987—but it's your responsibility to keep a supply of those yellow cards on hand for reporting time compliances which do not come in a kit.

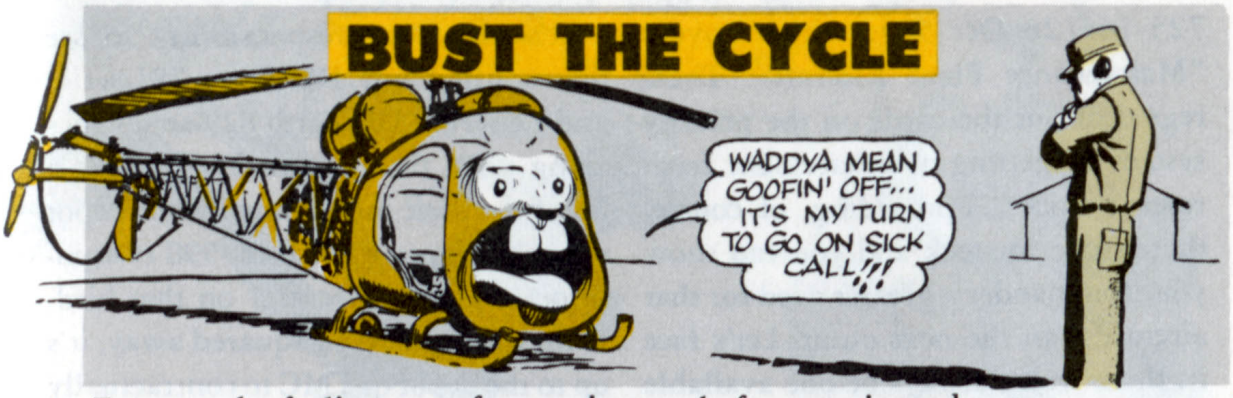
CHANGE THE ADDRESS

The regulations and the form have been around for a while, but the TC address is new. So remember to scratch out the old address on the flip side of the form and write or type in this one:



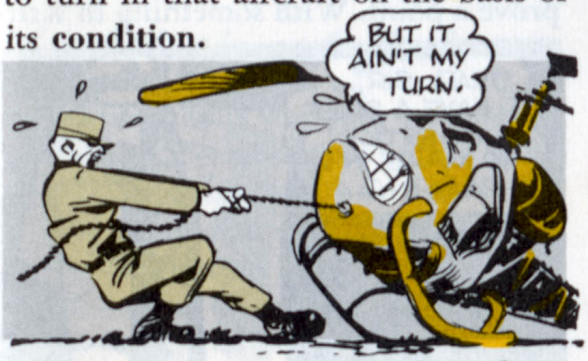


That'll help out the post office people. Also keep in mind that future TM 1-series time compliances may soon be calling themselves MWO's (Modification Work Orders), just like on all your other Army equipment.



Ever get the feeling one of your aircraft was being shoved into scheduled depot maintenance when it should be home doing the chores?

Well, under the new IROAN (Inspect and Repair Only as Necessary) concept, you can forget about cyclic depot maintenance. You're now allowed to turn in that aircraft on the basis of its **condition.**



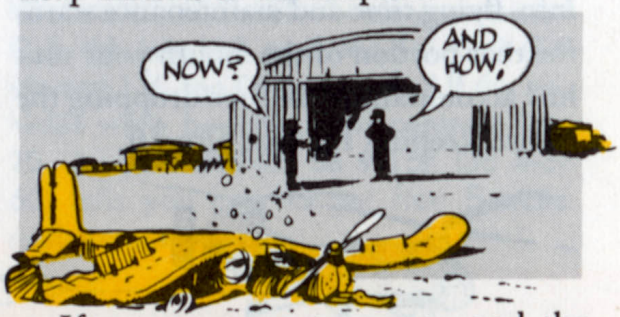
There've been a couple-three depot maintenance programs down the runway in the last few years . . . DIR, IRAN and SCAMP. Each served a purpose in its own day. For example, the recently superseded SCAMP program was the Army's method of bringing its flying fleet up to a standard configuration after depot maintenance responsibility was transferred from USAF . . . and it included making all the necessary modifications to hit the goal.

IROAN, the new program, is aimed at letting you keep each bird until it starts getting sick—instead of making you follow a set flying hour or calendar cycle for turn in to depot.

TMC letter TCMAC-FA (19 Nov 59), on "Depot Maintenance of Army Aircraft, IROAN," started the changeover . . . and you'll get to see the new program in the latest TB AVN 23-8.

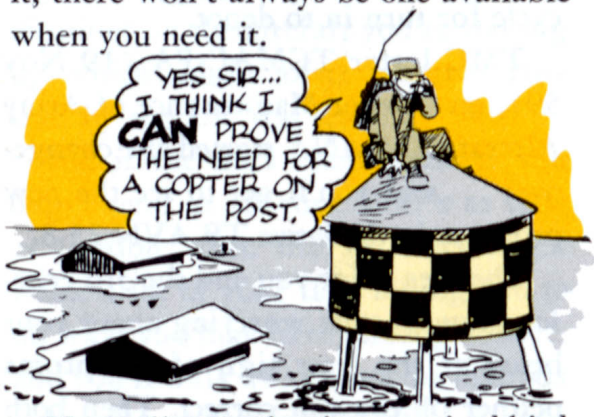
The idea is for you and the 3rd echelon crew to start worrying about your beast at the first sign of symptoms neither of you can correct. Then both of you get into a sort of medical maintenance huddle with your 4th echelon support to diagnose the animal's **condition.**

When it looks like none of you can help the poor critter at the local aid station and you think the situation warrants it, consult your local doctor—the nearest depot maintenance shop—about putting your sick bird into the hospital. But, for Pete's sake, don't wait until the ailing beast is ready for the scrap heap instead of the hospital.



If worse comes to worse, and the depot doctors decide to admit your aircraft for overhaul, be familiar with AR

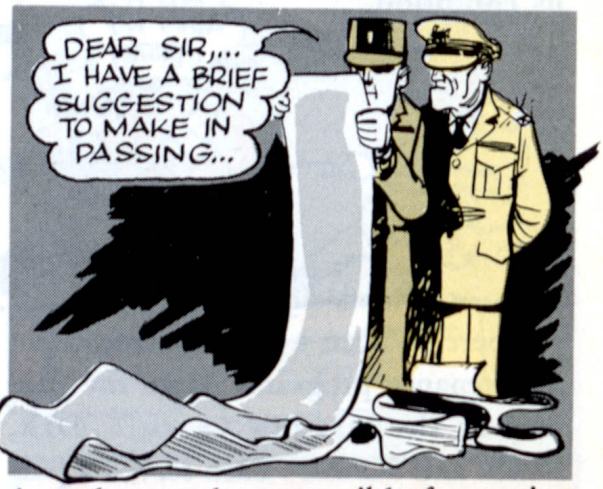
725-14 (26 Oct 59), which covers "Maintenance Float Aircraft". These regs deal out the cards on the priority system of getting a replacement from reserve stock . . . providing, of course, there's one in stock and you can show your commander a greater need for that aircraft than the next outfit. Let's face it, there won't always be one available when you need it.



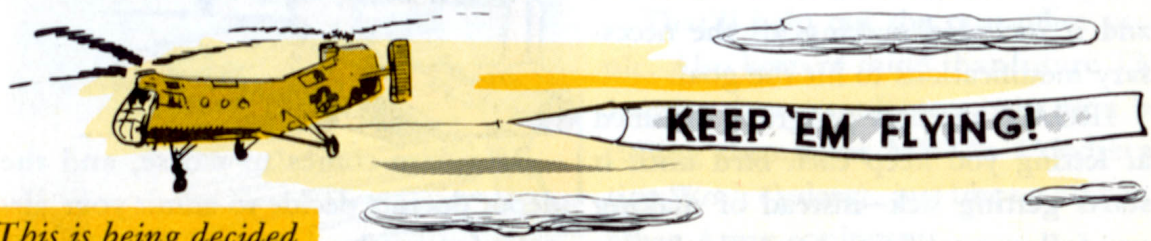
Naturally, turning in your tired bird to the depot means transferring accountability to TMC (Transportation Materiel Command). That is, unless it can be repaired in less than * days, has provisions for special equipment, or is assigned to the National Guard. Just remember, though, that AR 710-1500-8, with Change 2 (30 Sept 58), calls out the correct way of making that last entry on the DA Form 1352 (Army Aircraft Inventory Status and Flying Time). So, note the necessary transfer info, flying time and maintenance status for that portion of the month your unit had accountability **before** dropping the record keeping for that aircraft.

It's also your responsibility to see that a **filled out** DD Form 781-series and a **current** DD Form 829-series goes along with the turn-in. This makes a lot of the basic info handy for the depot when it fills otu a DA form 598 (Disposition of Army Aircraft) on that bird. With the paperwork squared away, it's up to the depot or TMC to contractually hustle that bird back to "maintenance float" status fast as possible . . . ready for a priority assignment.

Another thing that'll help you, indirectly, is to let TMC know about any hitches in the new program through command channels. If necessary, attach the info from acceptance inspections to prove a point. With something in writ-



ing, the people responsible for setting up the program will have some backing for making changes. They realize everything new has to be field tested . . . and they're waiting to hear from the field.



**This is being decided*

Connie Rodd's BRIEFS

Nike handy dandies

Your CO sure can get a handy boost from a couple of dandy pubs. They're especially for him. Tell him about DA Pamphlet 750-1-1 (Nov 59) PM Guide for Commanders — Nike-Ajax, and DA Pamphlet 750-1-2 (Mar 60) PM Guide for Commanders—Nike-Hercules.

Let air out first

Only mechanics who hate themselves forget to let air out of tires before splitting the two-piece hubs on aircraft wheels. Depending on tire size, you've got anywhere from 25 to 90 PSI locked up inside there for lots of potential POWS (Personnel on Winged Service). Forgetful types can read up on tire handling in TM 1-4T-1-2 (Aug 57), "Dismounting, Mounting and Inflation of Aircraft Tires and Tubes."

Pictures, too

There's a new supply manual (with pictures) on your No. 1 Supplemental tool set. The number is SM 9-4-5180-A17 (15 Mar 60). And it's called Tool Kit, Automotive Maintenance, Organizational: (2nd Echelon), Set No. 1, Supplemental (5180-754-0653).

Gone grommets

Make sure those grommets are in place where your battery cables pass through the battery boxes on your M38A1 Jeeps. They lose easy. And without 'em, vibration may soon cause the sharp-edged metal to saw through the cable insulation and short your electrical circuit.

New dope on M125

You drivers of the 10-ton M125 cargo-truck now have a TM you can call your own. Both the M125 and the single and dual winch M123 truck tractors are covered in TM 9-2320-206-12 (4 Feb 60), which also supersedes TM 9-8002 (1 Nov 55) and section I of ORD 7 SNL G792 (31 Jan 58).

Tougher tubes

Has vibration broken the engine-to-oil-filter metal solid wall tubes in your Model C-3-H6 (stake) and Model C-3-G6 (dump) 1½-ton Dodge trucks? If the vehicles were bought under contract DA-20-113-ORD-20942, SB 9-157 (30 Mar 60) tells you how to get free flexible replacements.

Would You Stake Your Life on the Condition of Your Equipment?

YOUR UER HELPS

EVERYBODY-INCLUDING YOU

Fire off a UER (DA Form 468) on your equipment that's not up to par. See AR-738 for details.